

Management Plan Update Report



January 2011 – December 2011

April 1, 2012

Irrigated Lands Regulatory Program

Central Valley Regional Water Quality Control Board

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ATTACHMENTS

Appendix I. High Priority Site Subwatershed Analysis

LIST OF ACRONYMS

A	Assessment
AMR	Annual Monitoring Report
APN	Assessor Parcel Number
AWEP	Agricultural Water Enhancement Program
BMP	Best Management Practice
C	Core
CURES	Coalition for Urban/Rural Environmental Stewardship
CVRWQCB	Central Valley Regional Water Quality Control Board
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DO	Dissolved Oxygen
EQIP	Environmental Quality Incentives Program
ESJWQC	East San Joaquin Water Quality Coalition
F	Field
HCH	Hexachlorocyclohexane
ILRP	Irrigated Land and Regulatory Program
MLJ-LLC	Michael L. Johnson, LLC

MPUR	Management Plan Update Report
MPM	Management Plan Monitoring
MRP	Monitoring and Reporting Program Order No. R5-2008-0005
MRPP	Monitoring and Reporting Program Plan
NA	Not Applicable
NM	Normal Monitoring
NRCS	Natural Resource Conservation Service
PAM	Polyacrylamide
pH	Power of Hydrogen
Prop 84	Proposition 84
PUR	Pesticide Use Report
SAMR	Semi-Annual Monitoring Report
SC	Specific Conductance
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRS	Township, Range, Section
USEPA	United States Environmental Protection Agency
WQO	Water Quality Objective
WQTL	Water Quality Trigger Limit

LIST OF UNITS

cfs	cubic feet per second
cm	centimeter
L	Liter
lbs	pounds
mg	milligram
mph	miles per hour
MPN/100mL	most probable number per 100 milliliters
sec	second
µg	microgram
µS	microsiemens
µg/kg dw	microgram per kilogram of dry weight

ESJWQC MANAGEMENT PLAN UPDATES AND AMENDMENTS

Table A. ESJWQC Management Plan Updates and Amendments Summary.

ITEM NUMBER	AMENDMENTS DESCRIPTIONS	DATE SUBMITTED ¹	MANAGEMENT PLAN PAGE NUMBER	DATE APPROVED
Original ESJWQC Management Plan Report		October 30, 2008		November 25, 2008
1	2009 Management Plan Update Report.	April 1, 2009	NA	September 28, 2009
2	Request to exchange priority sites: Hilmar Drain @ Central Ave for Bear Creek @ Kibby Rd.	October 23, 2009	Table B Pages 23-25 Pages 35-36	November 18, 2009
3	Request to modify Management Plan schedules to review status of current and the next set of high priority subwatersheds and proposed schedule for year of focused approach.	June 5, 2009	Verbiage, Page 65 Table B	December 16, 2009
4	Request to exchange sites: Exchanged Mootz Drain @ Langworth Rd for Mootz Drain downstream of Langworth Pond.	September 8, 2009	Table B	November 18, 2009
5	2010 Management Plan Update Report.	April 1, 2010	NA	June 21, 2010
6	Request to modify Management Plan Performance Goal schedule to address the remaining site subwatersheds.	June 5, 2010	Table 8, Table 9 Pages 28-31 Table 18, pgs 77-79	June 8, 2010
7	Request to exchange priority sites: Ash Slough @ Ave 21 with Lateral 2 ½ near Keyes Rd and update Management Plan Performance Goals table for 3rd priority.	October 12, 2010	Table B	November 17, 2010
8	2011 Management Plan Update Report.	April 1, 2011	NA	May 17, 2011
9	Request to update Management Plan Performance Goals table for 4th priority.	October 17, 2011	NA	November 14, 2011
10	Request to remove constituents from site specific management plan.	January 6, 2012	NA	TBD

¹ All deliverables are submitted electronically (quarterly monitoring data reports, Annual Monitoring Report, Annual Management Plan Update Report)

NA-Not applicable

TBD-To Be Determined; Regional Board is still reviewing.

Table B. ESJWQC 2012 MPUR Amendments Summary.

ITEM NUMBER	AMENDMENTS DESCRIPTIONS	DATE SUBMITTED	MANAGEMENT PLAN PAGE NUMBER	DATE APPROVED
1	2012 MPM Schedule-revised due to suspension of Management Plan Monitoring at all locations except Bear Creek @ Kibby Rd.	April 30, 2012	Table 7, Page 28	April 17, 2012
2	Revised exceedance tally tables and Appendix I table to exclude azinphos methyl exceedance (APPL lab report error).	April 30, 2012	Tables 4-5, Pages 12-14, Appendix I Table VIII-5 and Verbiage, Page 241	NA
3	Added TMDL Dissolved Oxygen section as requested by Regional Board	April 30, 2012	Tables 44-45, Pages 144-145	NA

NA-Not Applicable

EXECUTIVE SUMMARY

The East San Joaquin Water Quality Coalition (ESJWQC or Coalition) is submitting a Management Plan Update Report on the status and methods used to identify agriculture sources, track implemented management practices, and progress toward meeting its performance goals as outlined in the ESJWQC Management Plan. A Management Plan Update Report (MPUR) is submitted every April 1 to report on the previous year's activities and update management plan implementation schedules and timelines for reporting to the Central Valley Regional Water Quality Control Board (CVRWQCB or Regional Board).

This is the fourth yearly update report to the Coalition's Management Plan. In this report, previous year's monitoring data are reviewed and assessed for exceedances and water quality improvements. This update includes an assessment of water quality based on 2011 monitoring results, including new exceedances and new site/constituents requiring management plans.

Water quality monitoring was conducted during every month from January through December 2010 as described in the ESJWQC Monitoring and Reporting Program Plan (MRPP, pages 33-38). Management Plan Monitoring (MPM) was conducted based on prior exceedances at Coalition monitoring sites. There were 12 MPM sites monitored between January 2011 and December 2011: Dry Creek @ Wellsford Rd, Duck Slough @ Hwy 99, Prairie Flower Drain @ Crows Landing Rd, Cottonwood Creek @ Rd 20, Duck Slough @ Gurr Rd, Highline Canal @ Hwy 99, Bear Creek @ Kibby Rd, Berenda Slough along Ave 18 ½, Dry Creek @ Rd 18, Howard Lateral @ Hwy 140, Lateral 2 ½ near Keyes Rd and Livingston Drain @ Robin Ave. Based on the prioritization of exceedances, MPM was conducted for copper, chlorpyrifos, diazinon, diuron and lead, as well as toxicity to *Ceriodaphnia dubia*, *Selenastrum capricornutum*, and *Hyalella azteca*.

As a result of 2011 monitoring, several new site/constituent specific management plans are required including:

- pH
 - Deadman Creek @ Hwy 59
 - McCoy Lateral @ Hwy 140
- Dissolved solids
 - Dry Creek @ Wellsford Rd
- *E. coli*
 - Rodden Creek @ Rodden Rd
- Copper, dissolved
 - Berenda Slough along Ave 18 ½
 - McCoy Lateral @ Hwy 140
- Molybdenum
 - Prairie Flower Drain @ Crows Landing Rd

- Dimethoate
 - Prairie Flower Drain @ Crows Landing Rd
- *P. promelas* water column toxicity
 - Prairie Flower Drain @ Crows Landing Rd

The Coalition developed an updated flow chart for its MPM strategy. The strategy is updated to include MPM for high priority subwatersheds during Year 1, Year 2, Year 3 and Year 4. When a site becomes a high priority site subwatershed, the Coalition makes contacts to individuals within the subwatershed who have the potential for direct drainage and have applied constituents of concern. Contacts occur between October 1 prior to Year 1 and March 30 of Year 1 in order to schedule meetings and conduct individual contacts/interviews between November 1 and July 30. Individual meetings are used to inform growers of current water quality concerns and potential management practices that can be implemented to reduce impairments of water quality due to agricultural discharge.

During the interviews, growers are asked about their current farming operations and surveys are completed which document the grower's current management practices and record recommended management practices. It is anticipated that all surveys will be completed and entered into a database by August 1 of Year 1. Implementation of management practices is anticipated to occur between April of Year 1 and November of Year 2. It is difficult to predict when implementation will occur since some practices, such as structural management practices, may take multiple years to fund and construct.

Follow up surveys document newly implemented practices since initial contacts were completed. Follow up surveys document whether growers implemented those practices in Year 1 and if not, whether they plan to implement those practices in Year 2. The Coalition conducts follow up surveys with growers between February of Year 2 and April of Year 2. If the grower indicates that they do not intend to implement additional practices despite their previous declaration that they would, they are queried as to why (e.g. they no longer farm, no available funds). Follow up may be extended to Year 3 depending on information obtained from the growers as to when they plan to implement practices; in some cases, a third year may be necessary for funds to be available for structural improvements.

The Coalition prioritized constituents and site subwatersheds to allow for focused source identification, outreach and evaluation. The Coalition prioritized subwatersheds based on the number, frequency and magnitude of chlorpyrifos and diazinon exceedances. Other factors considered include size of the subwatershed and known improvements in management practices that have already been implemented in those areas. Although the Coalition is focusing on chlorpyrifos and diazinon exceedances and associated applications, management practices implemented to help reduce the runoff of these constituents will also reduce the runoff of other pesticides, nutrients, salts and metals.

The Coalition developed High Priority Site Subwatershed Performance Goals (hereafter referred to as Performance Goals) for its high priority site subwatersheds. Performance goals are submitted for approval each time a new set of subwatersheds rotates into high priority status and are built on the following actions essential to the Management Plan strategy:

1. Determine number/type of management practices currently in place, based on APN associated with baseline survey responses
2. Grower Group Contacts / Individual Contacts
3. Implementation of new management practices
4. Assess number/type of new management practices implemented
5. Evaluate effectiveness of new management practices

The Coalition submitted Performance Goals on November 24, 2008 in an amendment to the Management Plan. These goals were developed with coordination with Regional Board staff after evaluation of the effectiveness of the Coalition's Management Plan strategy. Performance goals, measures, outputs and completion dates for third priority subwatersheds were approved by the Regional Board on November 17, 2010.

For the third set of high priority sites (2011–2013), the Coalition completed Performance Measure 1.1 (100% of identified growers contacted), Performance Measure 1.2 (contact owners/operators representing at least 1,000 acres of member acres) of Performance Goal 1; Performance Measure 2.1 (document current management practices at 100% of identified growers) and Performance Measure 2.2 (document management practices that growers were encouraged to implement) of Performance Goal 2. Performance Measure 3.1 (document new management practices implemented by growers) of Performance Goal 3, Performance Measure 4.1 (Assess water quality results from Coalition monitoring locations) of Performance Goal 4, and Performance Goal 5 are in the process of being completed. Completion dates are February (Performance Measure 3.1 – record implemented management practices in an Access database) or April 2013 (Performance Measure 3.1 – summary of management practices implemented as a result of individual contacts; Performance Measure 4.1) as expensive structural management practices may take some time to implement.

Overall, the following conclusions can be drawn about Coalition outreach efforts:

- Subwatersheds that are high priority status and have had individual grower visits have seen a reduction in exceedances,
- The drop in exceedances coincides with implementation of management practices encouraged by the Coalition,
- Subwatersheds with high numbers of exceedances of pesticides either have not completed or started focused outreach,
- Agriculture may not be the only cause of copper water quality impairments in Coalition Zone 6,
- Growers in the ESJWQC region are taking advantage of available funding resources to be used to implement management practices that improve water quality,
- Growers across the ESJWQC region are implementing management practices, and
- After demonstrating two or more consecutive years of monitoring without exceedances, the Coalition has been able to petition to the Regional Board to remove certain constituents from active management plans from 10 high priority subwatersheds including all of the first and second priority subwatersheds.

The ESJWQC established monitoring and management activities for Total Maximum Daily Load (TMDL) constituents as required in the Regional Board's Basin Plan for the Sacramento and San Joaquin River basins to meet compliance for TMDL constituents.

Chlorpyrifos and Diazinon

The Basin Plan requires that dischargers either individually or as a coalition describe the actions that they will take to reduce chlorpyrifos and diazinon discharges and meet the applicable load allocations by the required compliance date. Improved management practices were implemented to meet WQOs and load allocations set forth in the Basin Plan including pesticide application practices to reduce drift, alternative irrigation practices to reduce runoff, and drainage management practices to decrease or reduce the volume of runoff of contaminants.

In 2010, the ESJWQC and Westside Water Quality Coalition (Westside Coalition) began implementing a monitoring strategy to comply with the chlorpyrifos and diazinon TMDL program Monitoring Objectives. During the first three quarters of 2011, each Coalition sampled three of the six compliance points as well as tributaries within their respective regions as per each Coalition's monitoring plan.

The Coalitions and Regional Board have agreed to move the chlorpyrifos and diazinon Annual Monitoring Report (AMR) due date from October 31 to May 1 (refer to memorandum submitted April 29, 2011). Each chlorpyrifos and diazinon AMR will report on a water year of monitoring data (October of year 1 through September of year 2). The San Joaquin River Chlorpyrifos and Diazinon 2012 AMR will be submitted on May 1, 2012 and will include a complete analysis and discussion of all monitoring data collected during October 2010 through September 2011.

Salt and Boron

The Regional Board and stakeholders initiated the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) in July 2008 to facilitate efforts needed for the efficient management of salinity in the Central Valley. The Regional Board and State Water Board have initiated this comprehensive effort to address salinity concerns in California's Central Valley and adopt long-term solutions that will lead to improved water quality and economic sustainability with the goal of developing a Salt and Boron Basin Plan Amendment. Coalition representatives attend CV-SALTS meetings and participate in planning and reviewing studies relevant to the development of a Basin Plan amendment for salt and boron. Coalition technical consultants participated in several CV-SALTS committees including the Technical Advisory Committee, the Knowledge Gained and Best Management Practice (BMP) Subcommittees, and the Executive Committee.

INTRODUCTION

The East San Joaquin Water Quality Coalition (ESJWQC or Coalition) is submitting a Management Plan Update Report (MPUR) on the status of water quality in the region and methods used to identify sources of agricultural discharges, track implemented management practices, and evaluate Performance Goals as outlined in the ESJWQC Management Plan. A Management Plan Update is submitted every April 1 to report on the previous year's activities and the status of management plan implementation schedules and timelines for reporting to the Regional Board. Yearly updates allow the Coalition to assess the need to conduct outreach to growers, evaluate information about pesticide use, and obtain water quality data collected from the previous year.

The Management Plan Update Report includes the following:

1. Status of constituents and subwatersheds requiring a management plan
2. Updates to the prioritization process of constituents (if applicable)
3. Status of priority subwatershed Performance Goals
4. Compliance with TMDL requirements
5. Summary of newly implemented management practices
6. Evaluation of management practice effectiveness

The Coalition compiled a detailed analysis of high priority subwatersheds (2008 – 2010, 2010 – 2012, 2011– 2013 and 2012–2014) including monitoring and exceedance histories, source analyses, outreach and management practice tracking.

OVERVIEW OF MONITORING

This is the fourth annual update report to the Coalition's Management Plan. In this report, monitoring data for the previous year are reviewed and assessed for exceedances and water quality improvements. This update includes an assessment of water quality based on 2011 monitoring results including new exceedances and new site/constituents requiring management plans.

During 2011, monitoring was conducted as outlined in the Coalition's Monitoring and Reporting Program Plan (MRPP, pages 33-59). In addition, Management Plan Monitoring (MPM) in 2011 was conducted at high priority locations for high priority constituents requiring a management plan. In some cases, these constituents were already being monitored under the MRPP monitoring schedule (Table 10, pages 52-53). The Coalition's Annual Monitoring Report (AMR) submitted on March 1, 2012 lists the locations, dates and type of sampling that was conducted during 2011.

There were 18 sites (including Lateral 3 along East Taylor Rd) monitored from January through December 2011 (Table 1). Lateral 3 along East Taylor Rd has been removed from the Coalition's MRPP (approved on February 7, 2012) and all Lateral 3 along East Taylor Rd monitoring results are located in Appendix X of the 2012 AMR (submitted on March 1, 2012). Twelve of the 18 sites were monitored for management plan constituents either additionally or as part of Assessment Monitoring; the other six sites were monitored specifically for MPM constituents only. Based on the prioritization of exceedances, MPM was conducted for copper, lead, chlorpyrifos, diazinon and diuron, water column toxicity (*Ceriodaphnia dubia* and *Selenastrum capricornutum*) and sediment toxicity (*Hyalella azteca*). Howard Lateral @ Hwy 140 was added to the priority schedule as a result of 2010 exceedances and in 2011 additional MPM was conducted during months of previous exceedances. Since Howard Lateral @ Hwy 140 is scheduled for high priority (2015-2017) the site is not listed in the MPM table. Additional MPM during 2011 at Howard Lateral occurred for chlorpyrifos (June) and copper (July and October) to demonstrate two years of monitoring data for high priority constituents prior to the site rotating to high priority.

Table 1. January-December 2011 Core (C), Assessment (A) and Management Plan Monitoring (MPM) Sites and Locations.

ZONE	SITE TYPE ¹	2011 MONITORING	SITE NAME	STATION CODE	LATITUDE	LONGITUDE
1	Core	A, MPM	Dry Creek @ Wellsford Rd	535XDCAWR	37.66000	-120.87526
1	Assessment	A	Rodden Creek @ Rodden Rd	535XRCARD	37.79053	-120.80886
2	Core	A, MPM	Prairie Flower Drain @ Crows Landing Rd	535XPFDCL	37.44187	-121.00331
2	Assessment	A	Lateral 3 along East Taylor Rd ²	535LTAETR	37.53673	-120.98410
2	Assessment	MPM	Lateral 2 1/2 near Keyes Rd	535LTHNKR	37.54766	-121.08509
3	Core	A, MPM	Highline Canal @ Hwy 99	535XHCHNN	37.41254	-120.75941
3	Assessment	A	Highline Canal @ Lombardy Rd	535XHCALR	37.45547	-120.72181
4	Core	A	Merced River @ Santa Fe	535XMRSFD	37.42705	-120.67353
4	Assessment	A	McCoy Lateral @ Hwy 140	535XMLAHO	37.30968	-120.78771
4	Assessment	MPM	Livingston Drain @ Robin Ave	535XLDARA	37.31693	-120.74229
4	Assessment	MPM	Howard Lateral @ Hwy 140	535XHLAHO	37.30790	-120.78200

ZONE	SITE TYPE ¹	2011 MONITORING	SITE NAME	STATION CODE	LATITUDE	LONGITUDE
4	Assessment	MPM	Bear Creek @ Kibby Rd	535XBCAKR	37.31230	-120.41535
5	Core	A, MPM	Duck Slough @ Gurr Rd	535XDSAGR	37.21408	-120.56126
5	Assessment	A	Deadman Creek @ Hwy 59	535DMCAHF	37.19755	-120.48763
5	Assessment	MPM	Duck Slough @ Hwy 99	535XDSAHN	37.25031	-120.41043
6	Core	A, MPM	Cottonwood Creek @ Rd 20	545XCCART	36.86860	-120.18180
6	Assessment	A, MPM	Berenda Slough along Ave 18 1/2	545XBSAAE	37.01820	-120.32650
6	Assessment	MPM	Dry Creek @ Rd 18	545XDCARE	36.98180	-120.22056

¹ Site types are either Assessment or Core based on the ESJWQC MRPP (page 33). Type of monitoring conducted at sample locations depends on the rotation schedule outlined in the ESJWQC MRPP (Table 10, pages 52-53), Core Monitoring locations rotate into Assessment Monitoring every third year.

² All data for Lateral 3 along East Taylor Rd (2011 Assessment Monitoring) reported in ESJWQC Annual Monitoring Report in Appendix X (submitted March 1, 2012).

C – Core Monitoring

A – Assessment Monitoring

MPM – Management Plan Monitoring

Water quality results from MPM are used to evaluate the effectiveness of Coalition outreach in priority subwatersheds and the effectiveness of management practices implemented by growers within those subwatersheds. Table 2 provides a comparison between 2010 and 2011 MPM results. Table 3 lists all MPM sites and monitoring results from 2011. Overall there was a decrease in the percentage of exceedance for chlorpyrifos, *S. capricornutum* toxicity, and *H. azteca* toxicity (Table 3). There was an overall increase in the percentage of copper exceedances (Table 2). There was no change in the percentage of exceedances of the water quality trigger limits (WQTLs) for diazinon, diuron and *C. dubia* toxicity; all three of these MPM constituents had zero exceedances in 2010 and 2011 (Table 2). Two constituents cannot be compared between 2010 and 2011: lead and simazine. Lead was first monitored as a MPM constituent in 2011 and simazine was monitored in 2010 at Mustang Creek @ East Ave. The monitoring concluded two consecutive years with no exceedances of the WQTLs which allows the Coalition to petition to remove the constituents from the sites management plan (Table 2).

Management Plan Monitoring that occurred in 2011 resulted in no exceedances for the following constituents: *C. dubia* toxicity, lead, diazinon, diuron and chlorpyrifos. The 2011 MPM results compared to 2010 indicate a 13% decrease in chlorpyrifos exceedances (Table 2). There was a single *S. capricornutum* toxicity (Prairie Flower Drain, February 17, 2011) out of 22 MPM samples collected (Table 3). Of the 47 MPM samples collected for copper in 2011, 15 exceeded the WQTL (19%, Table 2). Sediment toxicity to *H. azteca* occurred in two out of nine management plan samples collected in 2011 (22%, Table 2); this is a 3% decrease from 2010 where one out of four sediment samples was toxic (25%, Table 2).

Each high priority subwatershed is discussed in more detail regarding water quality exceedances, sourcing of exceedances, outreach and evaluation of management practices in relation to water quality in Appendix I.

Table 2. ESJWQC Management Plan Monitoring results 2010 and 2011.

MANAGEMENT PLAN MONITORING RESULTS	2010			2011			2010 vs 2011
	TOTAL MPM EXCEEDANCES	TOTAL MPM SAMPLES COLLECTED	% EXCEEDANCES	TOTAL MPM EXCEEDANCES	TOTAL MPM SAMPLES COLLECTED	% EXCEEDANCES	% DIFFERENCE
Copper	4	30	13%	15	47	32%	+19%
Lead (2011 Only)	NA	NA	NA	0	11	0%	NA
Chlorpyrifos	3	23	13%	0	2	0%	-13%
Diazinon	0	2	0%	0	2	0%	0%
Diuron	0	5	0%	0	7	0%	0%
Simazine (2010 Only)	0	2	0%	NA	NA	NA	NA
<i>C. dubia</i> (% Control)	0	9	0%	0	8	0%	0%
<i>S. capricornutum</i> (% Control)	1	18	6%	1	22	5%	-1%
<i>H. azteca</i> (% Control)	1	4	25%	2	9	22%	-3%

NA-Constituent not monitored for MPM during that year and 2010/2011 % difference could not be compared.

MPM-Management Plan Monitoring

Table 3. 2011 MPM results including a percentage of samples with exceedances.

"X" Indicates that a sample was collected for a management plan constituent and no exceedance of a WQTL occurred. Red numbers indicate exceedances of a WQTL in a MPM sample. Grey shaded cells indicate that no MPM was conducted on that date for that constituent.

SITE NAME	2011 MPM YEAR*	SAMPLE DATE	COPPER	LEAD	CHLORPYRIFOS	DIAZINON	DIURON	C. DUBIA (% CONTROL)	H. AZTECA (% CONTROL)	S. CAPRICORNUTUM (% CONTROL)
Bear Creek @ Kibby Rd	Year 2	1/18/2011	X							
Cottonwood Creek @ Rd 20	Year 2	1/18/2011	X		X		X			
Dry Creek @ Rd 18	Year 1	1/18/2011	12 (8.65)				X			X
Duck Slough @ Gurr Rd	Year 2	1/18/2011	X							
Highline Canal @ Hwy 99	Year 2	1/18/2011	X		X		X			X
Livingston Drain @ Robin Ave	Year 1	1/18/2011	X	X	X					
Prairie Flower Drain @ Crows Landing Rd	Year 3	1/18/2011								X
Bear Creek @ Kibby Rd	Year 2	2/17/2011	X							
Cottonwood Creek @ Rd 20	Year 2	2/17/2011	X		X	X	X			
Dry Creek @ Rd 18	Year 1	2/17/2011	X		X	X	X			X
Dry Creek @ Wellsford Rd	Year 3	2/17/2011	X				X			X
Duck Slough @ Gurr Rd	Year 2	2/17/2011	X					X		
Duck Slough @ Hwy 99	Year 3	2/17/2011	X							
Highline Canal @ Hwy 99	Year 2	2/17/2011	X		X		X			
Livingston Drain @ Robin Ave	Year 1	2/17/2011	X	X						X
Prairie Flower Drain @ Crows Landing Rd	Year 3	2/17/2011								82
Dry Creek @ Rd 18	Year 1	3/17/2011							X	
Dry Creek @ Wellsford Rd	Year 3	3/15/11, 3/17/11							X	X
Duck Slough @ Gurr Rd	Year 2	3/15/2011						X		
Highline Canal @ Hwy 99	Year 2	3/15/11, 3/17/11							X	X
Prairie Flower Drain @ Crows Landing Rd	Year 3	3/15/11, 3/17/11						X	X	
Cottonwood Creek @ Rd 20	Year 2	4/19/2011	4.6 (3.83)							
Dry Creek @ Rd 18	Year 1	4/19/2011	3.9 (3.2)		X					
Dry Creek @ Wellsford Rd	Year 3	4/19/2011	X							
Duck Slough @ Hwy 99	Year 3	4/19/2011	X	X						X
Highline Canal @ Hwy 99	Year 2	4/19/2011	X							X
Howard Lateral @ Hwy 140	MPM 1	4/19/2011	X							
Lateral 2 1/2 near Keys Rd	Year 1	4/19/2011			X					
Livingston Drain @ Robin Ave	Year 1	4/19/2011								X
Prairie Flower Drain @ Crows Landing Rd	Year 3	4/19/2011								X

SITE NAME	2011 MPM YEAR*	SAMPLE DATE	COPPER	LEAD	CHLORPYRIFOS	DIAZINON	DIURON	C. DUBIA (% CONTROL)	H. AZTECA (% CONTROL)	S. CAPRICORNUTUM (% CONTROL)
Bear Creek @ Kibby Rd	Year 2	5/17/2011			X			X		
Berenda Slough along Ave 18 1/2	Year 1	5/17/2011								X
Cottonwood Creek @ Rd 20	Year 2	5/17/2011	3.8 (3.02)							
Dry Creek @ Rd 18	Year 1	5/17/2011	2.9 (1.36)	X						X
Duck Slough @ Gurr Rd	Year 2	5/17/2011	X							
Duck Slough @ Hwy 99	Year 3	5/17/2011		X	X					
Highline Canal @ Hwy 99	Year 2	5/10/2011						X		X
Livingston Drain @ Robin Ave	Year 1	5/17/2011	X							X
Prairie Flower Drain @ Crows Landing Rd	Year 3	5/10/2011								X
Cottonwood Creek @ Rd 20	Year 2	6/21/2011	3.8 (3.74)							
Dry Creek @ Rd 18	Year 1	6/21/2011	4.8 (1.03)	X						
Duck Slough @ Gurr Rd	Year 2	6/21/2011	X							
Duck Slough @ Hwy 99	Year 3	6/21/2011	X	X						
Highline Canal @ Hwy 99	Year 2	6/14/2011	X							
Livingston Drain @ Robin Ave	Year 1	6/21/2011	X		X					
Bear Creek @ Kibby Rd	Year 2	7/19/2011			X			X		
Berenda Slough along Ave 18 1/2	Year 1	7/19/2011			X					X
Cottonwood Creek @ Rd 20	Year 2	7/19/2011	4.3 (3.56)							
Dry Creek @ Rd 18	Year 1	7/19/2011	4.3 (0.81)		X					
Dry Creek @ Wellsford Rd	Year 3	7/12/2011			X					
Duck Slough @ Gurr Rd	Year 2	7/19/2011	X		X					X
Duck Slough @ Hwy 99	Year 3	7/19/2011	X	X	X					X
Highline Canal @ Hwy 99	Year 2	7/12/2011	X		X					
Lateral 2 1/2 near Keys Rd	Year 1	7/12/2011			X					
Livingston Drain @ Robin Ave	Year 1	7/19/2011	2.6 (1.67)		X					
Bear Creek @ Kibby Rd	Year 2	8/16/2011	X							
Cottonwood Creek @ Rd 20	Year 2	8/16/2011	X							
Dry Creek @ Rd 18	Year 1	8/16/2011	5.0 (0.81)	X						
Dry Creek @ Wellsford Rd	Year 3	8/9/2011			X					
Duck Slough @ Hwy 99	Year 3	8/16/2011	X	X						
Highline Canal @ Hwy 99	Year 2	8/9/2011	X					X		
Livingston Drain @ Robin Ave	Year 1	8/16/2011			X					
Prairie Flower Drain @ Crows Landing Rd	Year 3	8/9/2011			X					
Berenda Slough along Ave 18 1/2	Year 1	9/13/2011			X					
Cottonwood Creek @ Rd 20	Year 2	9/13/2011	5.8 (3.2)							
Dry Creek @ Rd 18	Year 1	9/13/2011	4.6 (1.03)	X					X	
Dry Creek @ Wellsford Rd	Year 3	9/6/2011			X				65	
Duck Slough @ Gurr Rd	Year 2	9/13/2011							83	X
Duck Slough @ Hwy 99	Year 3	9/13/2011	X		X					
Highline Canal @ Hwy 99	Year 2	9/6/2011							X	
Livingston Drain @ Robin Ave	Year 1	9/13/2011	1.7 (1.25)							
Prairie Flower Drain @ Crows Landing Rd	Year 3	9/6/2011			X			X	X	
Total MPM Exceedances			14	0	0	0	0	0	2	1
Total MPM Samples Collected			45	11	27	2	7	8	9	22
% Exceedances			31%	0%	0%	0%	0%	0%	22%	5%

MPM- Management Plan Monitoring

WQTL – Water Quality Trigger Limit

* Year 1, Year 2 and Year 3 refer to the year of high priority that the site subwatershed is in.

2004 - 2011 EXCEEDANCES

An important aspect of the ESJWQC Management Plan is to maintain yearly updates of exceedances based on the most recent WQTLs. Table 4 provides a tally of exceedances for sites monitored from 2004 through 2011.

Sites not included in this tally, as described in the ESJWQC Management Plan submitted on September 30, 2008 are August Drain, Jones Drain and Lone Willow Slough. Sough Slough @ Quinley Rd was removed from the ESJWQC MRPP and from Table 4 (approved June 3, 2010). In addition, exceedances that occurred at the site Lateral 3 along East Taylor Rd are not included in Tables 4 and 5. Lateral 3 along East Taylor Rd is removed from the Coalition's MRPP (approved on February 7, 2012) and all 2011 monitoring results from the site can be located in Appendix X of the AMR 2012 (submitted on March 1, 2012). Sites monitored as upstream MPM sites in 2008 where exceedances occurred are not included in Table 4 or 5. These sites and associated exceedances were included in the Management Plan Update Report (MPUR) submitted on April 1, 2009 and are referenced in the site subwatershed section (Appendix I).

Table 5 includes a tally of exceedances that occurred since the last update (April 1, 2011) and includes monitoring results from 2011. In both Table 4 and 5, cells with blue highlights indicate exceedances that are currently under the ESJWQC Management Plan. In Table 5, green highlights indicate sites/constituents that have been added to the ESJWQC Management Plan due to exceedances in 2011.

Table 4. ESJWQC exceedance tally based on results through December 2011.

Sites are listed alphabetically by site name and constituents are listed alphabetically within each of the following groups: field parameters (F), inorganics (I), bacteria (B), metals (M), pesticides (P) and toxicity (T). Constituents under a management plan are highlighted. The tally only includes field duplicate exceedances if the environmental sample did not also have an exceedance.

	F			I				B	M					P														T											
SITE NAME	OXYGEN, DISSOLVED	PH	SPECIFIC CONDUCTIVITY	DISSOLVED SOLIDS	AMMONIA	NITRATE AS N	NITRITE AS N	NITRATE + NITRITE AS N	E. COLI	ARSENIC	COPPER DISSOLVED†	COPPER TOTAL†	LEAD	MOLYBDENUM	ZINC	ALDICARB	CARBARYL	CARBOFURAN	CHLORPYRIFOS	CYANAZINE	DDD (P,P')	DDE (P,P')	DDT (P,P')	DIAZINON	DIELDRIN	DIMETHOATE	DIURON	HCH, DELTA	MALATHION	METHIDATHION	METHOXYCHLOR	METHYL PARATHION	THIOBENCARB	SIMAZINE	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA	
Ash Slough @ Ave 21	1								3		2	5	2						4																			1	
Bear Creek @ Kibby Rd	2	3							7	1		4							2			1													3		2	2	
Berenda Slough along Ave 18 ½	10								7		11								4							1									1		3		
Black Rascal Creek @ Yosemite Rd	17	2							11			1	2						4																5		1	1	
Cottonwood Creek @ Rd 20	19	1							19		9	12	3						3	1				1			2							1		1	2	1	
Deadman Creek @ Gurr Rd	27	1	6	6	5				41	11		4							4			1		1					1						4	7	3		
Deadman Creek @ Hwy 59	17	4							17	5									6		1	1					1							1			3	1	
Dry Creek @ Rd 18	3	4							4		7	21	5		1				3					2			2								1		4	2	
Dry Creek @ Wellsford Rd	36	6	1	1					40			3	1						8								2						1		2		5	3	
Duck Slough @ Gurr Rd	4	6	2	1				1	22		1	8	4					1	1															2		3	1	2	7
Duck Slough @ Hwy 59	3		1																																				
Duck Slough @ Hwy 99	2	3							12			11	11						4																1		3	2*	
Hatch Drain @ Tuolumne Rd	23		22	12	1	13	1		12	12												1			1							1						10	6
Highline Canal @ Hwy 99	1	15	1	2	2				11			7	7						5			1					2								4		4	6	
Highline Canal @ Lombardy Rd	1	5	1		1				6		2	5	8		1				6							1		1				1		1	6	2*	5	7	
Hilmar Drain @ Central Ave	6	3	37	26	2	12			20			2							1		1	1				3									1		6	4	
Howard Lateral @ Hwy 140	1	6	1	1				1	3		4								1																		1		
Lateral 2 ½ near Keyes Rd		5			1			1	2										3									1									1	1	
Livingston Drain @ Robin Ave	1	11				1			2		2	9	2						4																		4		
McCoy Lateral @ Hwy 140		2									3																												
Merced River @ Santa Fe	4	1							4			1	2						3			1						1							5		1		
Miles Creek @ Reilly Rd	10								7			7	5		1				4											1					3		3	3	
Mootz Drain @ Langworth Rd	10	1			1 ²				9										2								1 ²											1	

	F			I				B	M					P															T									
	OXYGEN, DISSOLVED	PH	SPECIFIC CONDUCTIVITY	DISSOLVED SOLIDS	AMMONIA	NITRATE AS N	NITRITE AS N	NITRATE + NITRITE AS N	E. COLI	ARSENIC	COPPER DISSOLVED†	COPPER TOTAL†	LEAD	MOLYBDENUM	ZINC	ALDICARB	CARBARYL	CARBOFURAN	CHLORPYRIFOS	CYANAZINE	DDD (P,P')	DDE (P,P')	DDT (P,P')	DIAZINON	DIELDRIN	DIMETHOATE	DIURON	HCH, DELTA	MALATHION	METHIDATHION	METHOXYCHLOR	METHYL PARATHION	THIOBENCARB	SIMAZINE	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA
SITE NAME																																						
Mootz Drain downstream of Langworth Pond	9				1 ²				10																		1 ²											
Mustang Creek @ East Ave	12		9	6	1			2	10		4								2			3												2	2*		1	1
Prairie Flower Drain @ Crows Landing Rd	18	6	84	67	11	18	1	37	51	1				5			1		4					1			3			1					3	3 ¹	12	6
Rodden Creek @ Rodden Rd									4														1				1											
Silva Drain @ Meadow Dr	17	1			3				13			3	1						6																3	1		4
Westport Drain @ Vivian Rd	7		19	13		13			7										2																		4	1
GRAND TOTAL	261	86	184	135	29	57	2	42	354	30	45	103	53	5	2	1	1	1	86	1	2	4	8	3	1	4	17	2	3	1	1	1	3	5	47	15	82	58

*Not prioritized for MPM; both toxic samples were from the same sampling event (sample and resample to test for persistence).

¹Two of the toxic samples were from the same sampling event (sample and resample to test for persistence).

²Exceedances from the Mootz Drain @ Langworth Rd site count toward the management plan for Mootz Drain Downstream of Langworth Pond (site location was moved in December 2010, as approved on November 18, 2009).

† Exceedances of the copper WQTL determined by either total or dissolved copper are evaluated under the same copper management plan.

Table 5. ESJWQC exceedance tally based on 2011 sampling events.

All sites are listed that have had at least one exceedance in 2011. Sites are listed alphabetically by site name and constituents are listed alphabetically within each of the following groups: field parameters (F), inorganics (I), bacteria (B), metals (M), pesticides (P) and toxicity (T). Green highlighted cells refer to sites/constituents that require a management plan due to 2011 exceedances; blue highlights refer to sites/constituents already in a management plan. The tally only includes field duplicate exceedances if the environmental sample did not also have an exceedance.

ZONES	SITE NAME	F			I			B	M		P					T			
		OXYGEN, DISSOLVED	PH	SPECIFIC CONDUCTIVITY	DISSOLVED SOLIDS	AMMONIA	NITRATE + NITRITE AS N	E. COLI	COPPER DISSOLVED†	MOLYBDENUM	CARBARYL	CHLORPYRIFOS	DDT (P,P')	DIMETHOATE	DIURON	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA
6	Berenda Slough along Ave 18 ½	2						5	11			1							
6	Cottonwood Creek @ Rd 20	1						3	6										
5	Deadman Creek @ Hwy 59		4					5				2							
6	Dry Creek @ Rd 18		2						7										
1	Dry Creek @ Wellsford Rd	4	1		1			5											1
5	Duck Slough @ Gurr Rd	1	1					2									1		1
3	Highline Canal @ Hwy 99		1					1				1							
3	Highline Canal @ Lombardy Rd							2	1									1	
4	Howard Lateral @ Hwy 140								1										
2	Lateral 2 ½ near Keyes Rd		1																
4	Livingston Drain @ Robin Ave								2										
4	McCoy Lateral @ Hwy 140		2						3										
4	Merced River @ Santa Fe							1				1							
2	Prairie Flower Drain @ Crows Landing Rd	3		13	11	5	10	9		5	1	1	2		1	1	3		
1	Rodden Creek @ Rodden Rd							4				1		1					
GRAND TOTAL		11	12	13	12	5	10	37	31	5	1	3	4	2	1	1	2	4	2

† Exceedances of the copper WQTL determined by either total or dissolved copper are evaluated under the same copper management plan.

2011 NEW SITE/CONSTITUENTS REQUIRING MANAGEMENT PLANS

New sites that require a focused management plan approach are added to the priority list (Table 6). Source identification, outreach and evaluation of management practices will be addressed at all new site subwatersheds that have been added to the focused management plan list during their years of high priority status as specified in Table 6.

As a result of 2011 monitoring, several new site/constituent specific management plans are required (see green highlights in Table 5). Below is a list of constituents with 2011 exceedances that triggered a new site/constituent specific management plan:

- pH
 - Deadman Creek @ Hwy 59
 - McCoy Lateral @ Hwy 140
- Total Dissolved Solids (TDS)
 - Dry Creek @ Wellsford Rd
- *E. coli*
 - Rodden Creek @ Rodden Rd
- Copper, dissolved
 - Berenda Slough along Ave 18 ½
 - McCoy Lateral @ Hwy 140
- Molybdenum
 - Prairie Flower Drain @ Crows Landing Rd
- Dimethoate
 - Prairie Flower Drain @ Crows Landing Rd
- *P. promelas* water column toxicity
 - Prairie Flower Drain @ Crows Landing Rd

MANAGEMENT PLAN PROCESS

The ESJWQC Management Plan process was first outlined in the ESJWQC Management Plan submitted on September 30, 2008 and updated in the 2010 MPUR to reflect the current monitoring strategy outlined in the ESJWQC MRPP (page 33) of rotating Core and Assessment Monitoring locations. Except for new Assessment Monitoring locations initiated in October 2008, all other subwatersheds under the ESJWQC Management Plan followed the original Management Plan flow charts. The process required additional monitoring in 2007 and upstream monitoring in 2008 during the irrigation season for high priority constituents during months of past exceedances. In 2009, the Coalition was able to utilize source information gained from MPM during its outreach efforts, especially within high priority site subwatersheds. Due to the extensive amount of monitoring conducted within the Coalition region, the Coalition is focusing its efforts on documenting changes in management practices and performing outreach at both an individual and grower group level.

MANAGEMENT PLAN MONITORING STRATEGY

The Coalition developed an updated flow chart for its MPM strategy for low priority subwatersheds (Figure 1) and high priority subwatersheds (Figure 2). Sites are rotated from non-high priority to high priority based on a schedule approved by the Regional Board (Table 6). Based on this strategy, the Coalition will monitor new management plan sites/constituents during months of past exceedances for at least two years after the initiation of a management plan. This monitoring may overlap with Assessment Monitoring already occurring at that location and therefore there would not be “additional” monitoring. Appendix I (Low Priority Subwatersheds section) contains details on low priority sites monitored in 2011 which are sampling locations that were not sampled by the Coalition until the 2008 MRPP was approved, and therefore the Coalition does not have a long historical record of water quality data at the site. Management plans were recently initiated at these sites as a result of monitoring and, in order for the Coalition to gain two years of monitoring data for high priority constituents prior to the site rotating to high priority, the Coalition conducts additional monitoring as needed. While this additional monitoring is occurring, the Coalition considers the site a low priority subwatershed.

The Coalition selected this strategy for new management plan sites/constituents since outreach and education will continue with all members within the Coalition, not just with those in high priority subwatersheds. The Coalition anticipates growers will take the initiative and implement additional management practices before the subwatershed becomes a high priority site. Therefore, it is possible that Coalition monitoring results will indicate an improvement in water quality which would eliminate the need for future individual contacts/interviews. The other benefit of this strategy is that the additional monitoring will help in the assessment of the sources of exceedances (both temporally and geographically) between years.

Once a subwatershed rotates into high priority status, the Coalition initiates the process outlined in Figure 2 (Year 1 refers to the first year that the subwatershed is a high priority site). If there are two years of no exceedances of high priority constituents (either in Year 1 and Year 2 or Year 2 and Year 3), that site/constituent is petitioned for removal from an active management plan. Monitoring will occur for those constituents when the site is rotated back into Assessment Monitoring. Management Plan Monitoring may continue beyond two years if the Coalition determines that an extra year of monitoring is necessary to evaluate improvements in water quality and/or the effectiveness of newly implemented management practices. Figures 1, 2 and 4 further outline the Coalition's processes for management plan evaluation and prioritization of exceedances.

Figure 1. ESJWQC Management Plan Monitoring strategy for new non-high priority subwatersheds.

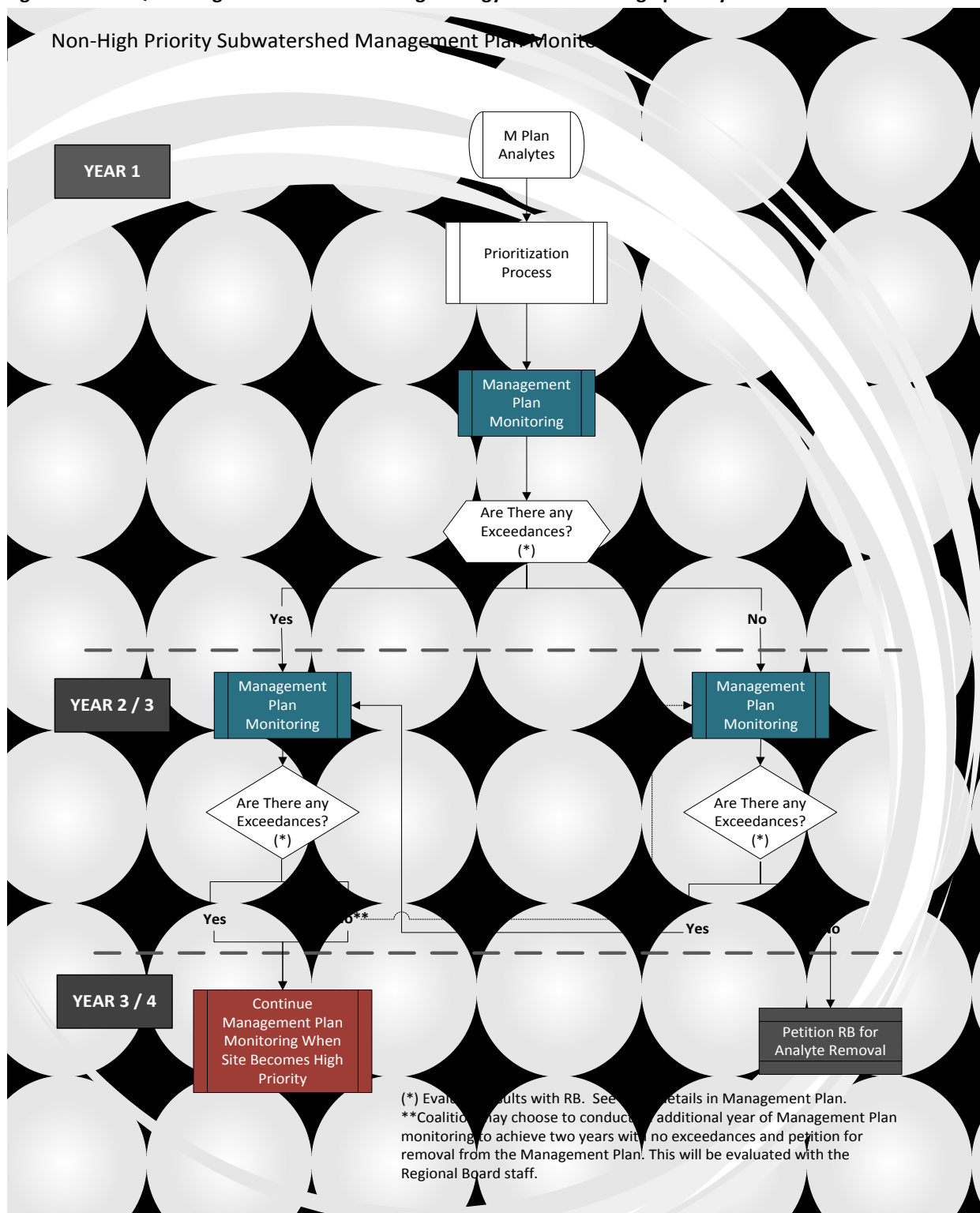
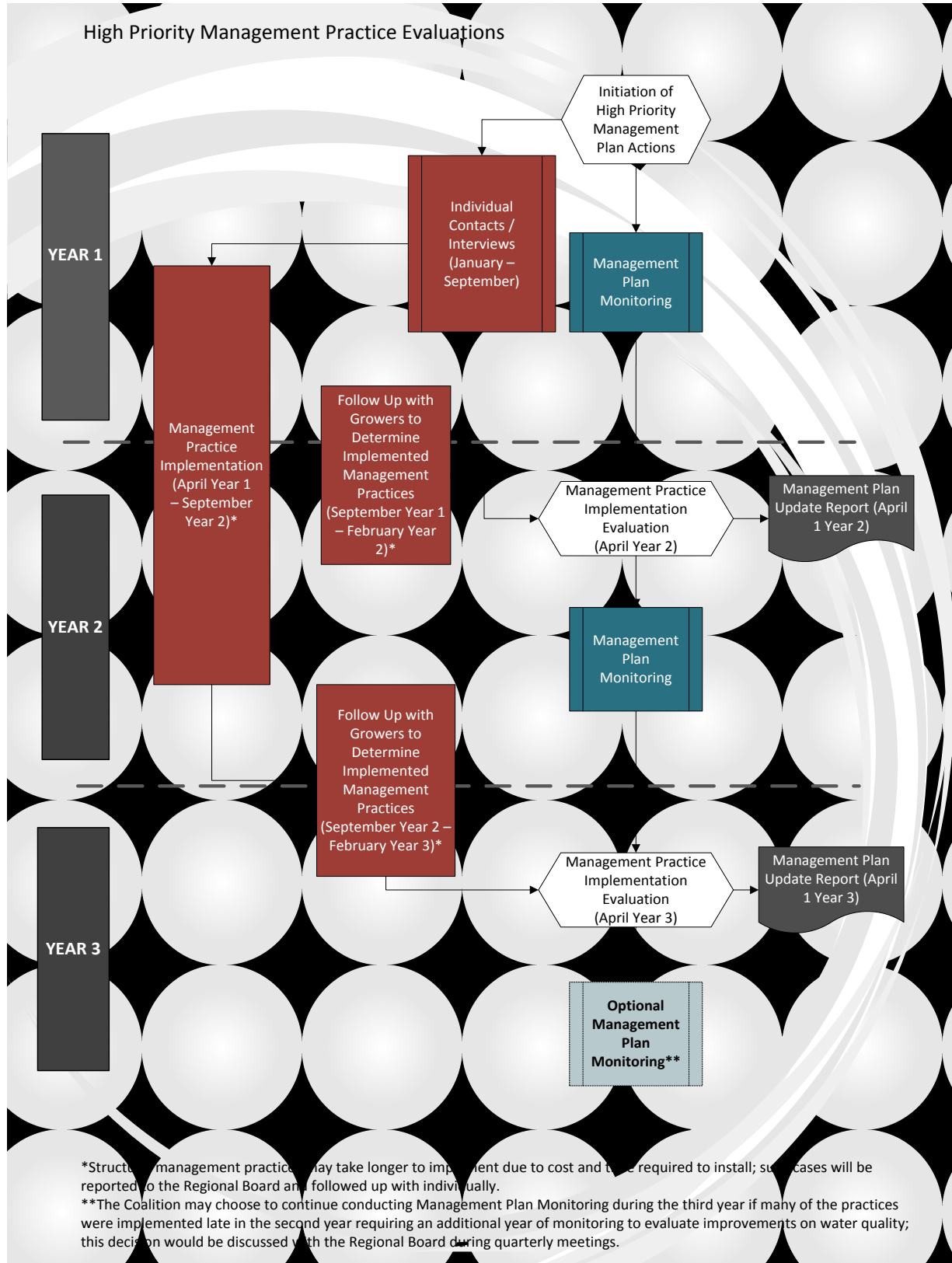


Figure 2. ESJWQC High Priority Subwatershed Management Plan Monitoring and management practice evaluation strategy.



MANAGEMENT PRACTICE TRACKING STRATEGY

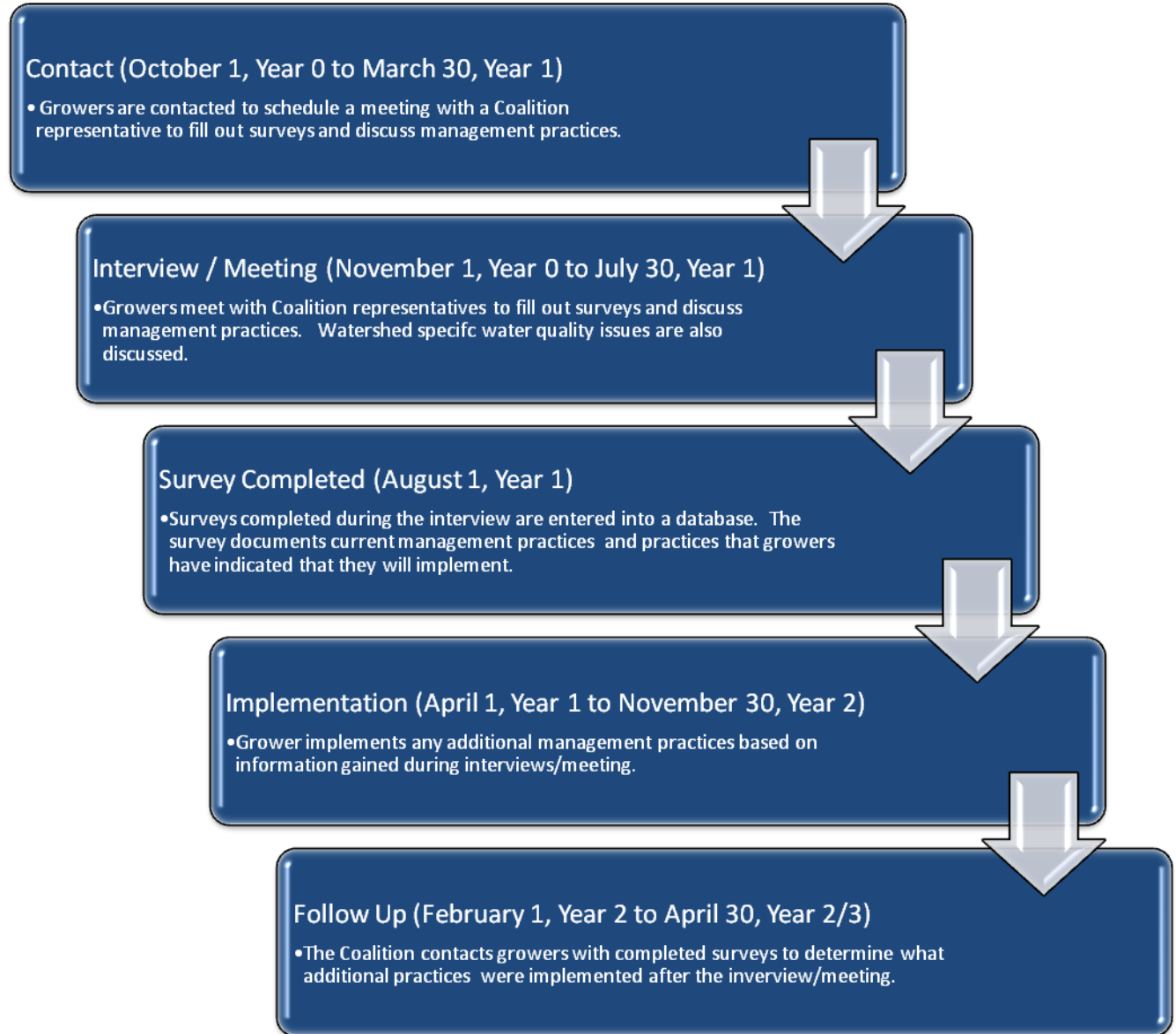
The schedule outlined in Figure 3 lists a general timeline of actions in Years 1, 2 and 3 of the flow chart outlined in Figure 2. When a site becomes a high priority site subwatershed, the Coalition makes contacts to individuals within the subwatershed who have the potential for direct drainage and applied constituents of concern. Contacts occur between October 1 and March 30 of Year 1 in order to schedule meetings and conduct individual contacts/interviews between November 1 and July 30. Individual meetings are initiated to inform growers of current water quality concerns and potential management practices that can be implemented to reduce impairments of water quality due to agricultural inputs.

During the interviews, growers are asked about their current farming operations and surveys are completed which document the grower's current management practices and record recommended management practices. It is anticipated that all surveys will be completed and entered into a database by August 1 of Year 1. Implementation of management practices is anticipated to occur between April of Year 1 and November of Year 2. It is difficult to predict when implementation will occur since some practices such as structural management practices may take multiple years to fund and construct.

The Coalition conducts follow up surveys with growers between February of Year 2 and April of Year 2. Follow up may be extended to Year 3 depending on information obtained from the growers as to when they plan to implement practices; in some cases a third year may be necessary for funds to be available for structural improvements. Growers contacted in Year 1 are scheduled to attend a follow up meeting. At the meeting, interactive devices are used by attendees to answer survey questions included in a PowerPoint presentation given by Coalition representatives. Growers who did not attend the follow up meeting are contacted via phone calls/phone interviews in order to complete their follow up survey questions.

The follow up survey documents whether growers implemented new management practices in Year 1; if they did not implement new management practices the survey documents whether or not they plan to implement those practices in Year 2. If the grower indicates that they did not implement any practices nor do they intend to implement additional practices in the next year, the grower is asked why (i.e. they no longer farm that parcel, no available funds, etc.).

Figure 3. Schedule for Coalition Management Plan strategy activities to document management practices for high priority subwatersheds.



PRIORITIZATION OF CONSTITUENTS WITH EXCEEDANCES

The ESJWQC developed a prioritization process (Figure 4) which allows the Coalition to focus on constituents of the greatest concern. The prioritization process was developed in collaboration with the Regional Board and allows the Coalition to focus on constituents where sourcing is possible (i.e. pesticide applications) and for which management practices are available. Following the process outlined in the flow chart in Figure 4, a priority level is assigned to a management plan constituent for a specific site subwatershed. Priority levels of a constituent determine the level of activity for sourcing, outreach and evaluation.

Source analysis is conducted by utilizing Pesticide Use Reports (PUR). All PUR data are considered preliminary and may contain some level of inaccuracy until they are finalized and made available through California Pesticide Information Portal (CalPIP). The most recently available CalPIP data are through December 2010. Preliminary PUR data associated with 2011 exceedances that were available for review included data from Madera County (January through June), Merced County (January through October) and Stanislaus County (January through September). Any outstanding PUR data that become available after this report is submitted will be included in an addendum to the AMR to be submitted on June 1, 2012.

Source analysis is also conducted by analyzing any relevant MPM data (may include upstream and/or increased frequency of monitoring conducted in previous years). Monitoring is conducted for priority constituents A through D; priority E constituents will not have MPM except for field parameters which are collected each time monitoring occurs.

The Coalition continues to provide information regarding management practices and water quality exceedances to growers during annual meetings and site subwatershed meetings as needed. When a site subwatershed is rotated into high priority, the Coalition focuses its outreach on high priority constituents; however, individual contacts also include discussions of all exceedances that have occurred within that waterbody.

The Coalition evaluates management practice information obtained from individual survey contacts including follow up surveys which document newly implemented practices. The Coalition expects that as a direct result of individual contacts and newly implemented practices, downstream water quality will improve. However, it is possible that due to actions of non members, there may continue to be downstream water quality impairments. Therefore, evaluations of management practices involve both an assessment of water quality and the degree of implementation of management practices at the subwatershed level.

```

graph TD
    AP[Analyte Prioritization] --> Q1{Is it an applied Pesticide, Metal, or Nutrient?}
    Q1 -- No --> Q2{Is it toxicity?}
    Q1 -- Yes --> Q3{Is There Associated Toxicity?}
    Q2 -- Yes --> Q4{Is it sediment toxicity?}
    Q2 -- No --> Q5{Previous Priority A-C Exceedances?}
    Q3 -- No --> C[C]
    Q3 -- Yes --> Q6{Is There a TMDL?}
    Q4 -- Yes --> D[D]
    Q4 -- No --> Q5
    Q5 -- No --> E[E]
    Q5 -- Yes --> D
    Q6 -- No --> C
    Q6 -- Yes --> Q7{Sediment Transport Associated Exceedances?}
    Q7 -- No --> C
    Q7 -- Yes --> A[A]
    Q8{Sediment Transport Associated Exceedances?} -- No --> D
    Q8 -- Yes --> C
  
```

The flowchart for Sediment Quality Assessment (SQA) begins with 'Analyte Prioritization'. It then asks 'Is it an applied Pesticide, Metal, or Nutrient?'. If 'No', it asks 'Is it toxicity?'. If 'Yes', it asks 'Is it sediment toxicity?'. If 'Yes' to sediment toxicity, the rating is 'D'. If 'No', it asks 'Previous Priority A-C Exceedances?'. If 'No' to this, the rating is 'E'. If 'Yes', the rating is 'D'. If 'No' to the initial question, it asks 'Is There Associated Toxicity?'. If 'No', the rating is 'C'. If 'Yes', it asks 'Is There a TMDL?'. If 'No', the rating is 'C'. If 'Yes', it asks 'Sediment Transport Associated Exceedances?'. If 'No', the rating is 'C'. If 'Yes', the rating is 'A'. If 'No' to the initial question, it asks 'Sediment Transport Associated Exceedances?'. If 'No', the rating is 'D'. If 'Yes', the rating is 'C'.

MANAGEMENT PLAN DEVELOPMENT TIMELINES

The Coalition developed a schedule (Table 6) establishing when sites become high priority and undergo a focused management plan approach. This schedule was submitted as an addendum to the ESJWQC Management Plan which was approved on November 25, 2008 (Table B). This schedule is evaluated and updated in each yearly MPUR for 1) any new sites requiring a management plan, and 2) changes to the years for focused outreach. Based on the Management Plan process, any new site that requires a management plan due to the previous year's exceedances is added to the bottom of the schedule. Changes such as time extensions, removal of sites and/or changing the year of prioritization must be approved by the Regional Board's Executive Officer.

Table 6 provides the updated schedule that includes approved changes to prioritization years. Updates to the schedule (other than the addition of new sites requiring a management plan) from previous years include the omission of South Slough @ Quinley Rd and the exchange of priority years for Bear Creek @ Kibby Rd, Hilmar Drain @ Central Ave, Lateral 2 ½ near Keyes Rd and Ash Slough @ Ave 21. Specific details regarding changes made to the priority schedule following 2011 monitoring are provided below.

McCoy Lateral @ Hwy 140 is the only new site to be added to the focused management plan schedule and it will rotate into high priority status in 2016 (Table 6). McCoy Lateral was monitored for the first time in 2011 as a rotating Assessment site. Exceedances of the following WQTLs occurred at McCoy Lateral in 2011: pH and copper (dissolved). McCoy Lateral is scheduled for Assessment Monitoring in 2012 and all constituents will be monitored during that time. There are currently 26 site subwatersheds included in the ESJWQC Management Plan that will become high priority sites between 2008 and 2018 (Table 6).

Table 6. Schedule for addressing each site subwatershed with a detailed, focused Management Plan approach (revised and approved May 17, 2011).

SITE SUBWATERSHED NAME	UPDATED YEAR FOR FOCUSED APPROACH
Dry Creek @ Wellsford Rd	2008-2010
Duck Slough @ Hwy 99	2008-2010
Prairie Flower Drain @ Crows Landing Rd	2008-2010
Cottonwood Creek @ Rd 20	2010-2012
Duck Slough @ Gurr Rd	2010-2012
Highline Canal @ Hwy 99	2010-2012
Bear Creek @ Kibby Rd	2010-2012
Lateral 2 ½ near Keyes Rd	2011-2013
Berenda Slough along Ave 18 1/2	2011-2013
Dry Creek @ Rd 18	2011-2013
Livingston Drain @ Robin Ave	2011-2013
Hilmar Drain @ Central Ave	2012-2014
Black Rascal Creek @ Yosemite Rd	2012-2014
Deadman Creek @ Hwy 59	2012-2014
Deadman Creek (Dutchman) @ Gurr Rd	2012-2014
Hatch Drain @ Tuolumne Rd	2013-2015
Highline Canal @ Lombardy Rd	2013-2015
Merced River @ Santa Fe	2013-2015
Miles Creek @ Reilly Rd	2013-2015
Mustang Creek @ East Ave	2014-2016
Silva Drain @ Meadow Dr	2014-2016
Westport Drain @ Vivian Rd	2014-2016
Ash Slough @ Ave 21	2015-2017
Mootz Drain downstream of Langworth Pond ¹	2015-2017
Howard Lateral @ Hwy 140	2015-2017
McCoy Lateral @ Hwy 140	2016-2018
RE-EVALUATE ALL SITE SUBWATERSHEDS AND REVISE SCHEDULE	ANNUALLY

¹Mootz Drain downstream of Langworth Pond was monitored for all management plan constituents detected at the upstream location, Mootz Drain @ Langworth Rd.

PRIORITY SITE MANAGEMENT

MANAGEMENT OBJECTIVES

The Coalition prioritizes constituents and site subwatersheds to allow for source identification, focused outreach and evaluation of management practices. In 2008, the Coalition prioritized subwatersheds based on the number, frequency and magnitude of chlorpyrifos and diazinon exceedances. Other factors considered include size of the subwatershed and known improvements in management practices in those areas.

The objective of the prioritization process is to identify watersheds where exceedances are common and management practices can be implemented to decrease agricultural discharges that may contribute to downstream impairments. Although the Coalition is focusing on chlorpyrifos and diazinon exceedances and associated applications, management practices implemented to help reduce the runoff of these constituents will also reduce the runoff of other pesticides, nutrients, salts, and metals.

The Coalition will monitor for Priority A- D constituents when a site becomes a high priority subwatershed. The purpose of monitoring is to evaluate improvements in water quality and the effectiveness of management practices. In addition, if there is a new site subwatershed requiring a management plan, that site will be monitored for at least two years for Priority A-D constituents. A site subwatershed analysis has been included in Appendix I for all high priority subwatersheds.

2012 MANAGEMENT PLAN MONITORING (MPM) SCHEDULE

In 2012, the ESJWQC will conduct MPM at the following sites. Years 1, 2, 3 and 4 reflect the number of years that the site will have been monitored as of 2012 (i.e. Year 4 indicates that the site is in its fourth year of MPM).

Year 4: First Priority (2008 – 2010)

- Dry Creek @ Wellsford
- Duck Slough @ Hwy 99
- Prairie Flower Drain @ Crows Landing

Year 2: Third Priority (2011-2013)

- Berenda Slough along Ave 18 ½
- Dry Creek @ Rd 18
- Lateral 2 ½ near Keyes Rd
- Livingston Drain @ Robin Ave

Year 3: Second Priority (2010 – 2012)

- Bear Creek @ Kibby Rd
- Cottonwood Creek @ Rd 20
- Duck Slough @ Gurr Rd
- Highline Canal @ Hwy 99

Year 1: Fourth Priority (2012-2014)

- Black Rascal Creek @ Yosemite Rd
- Deadman Creek @ Gurr Rd
- Deadman Creek @ Hwy 59
- Hilmar Drain @ Central Ave

The first priority subwatersheds are scheduled for continued monitoring in the fourth year (Year 4) to assess water quality due to initial delays in management practice evaluation and/or implementation. After two consecutive years without exceedances the Coalition will petition to have the constituents removed from that sites active management plan. The Coalition has petitioned for the removal of 14 constituents from 14 ESJWQC subwatersheds (letter mailed on January 6, 2012). Management Plan Monitoring will continue at high priority subwatershed sites until the Regional Board Executive Officer approves the removal of the site/constituent from the ESJWQC Management Plan.

Table 7 includes all sites that are scheduled for MPM for priority constituents during months of past exceedances in 2012. Table 8 includes monitoring details for Howard Lateral @ Hwy 140 and McCoy Lateral @ Hwy 140 which are scheduled for monitoring in 2012 for constituents added to their management plans as a result of exceedances. Howard Lateral @ Hwy 140 was added to the priority schedule as a result of 2010 exceedances and in 2011 completed the first of two years of additional MPM during months of previous exceedances required before rotating into high priority status. Howard Lateral @ Hwy 140 (high priority years 2015-2017) is scheduled for additional monitoring in 2012 for chlorpyrifos (June) and copper (April, July and October) to demonstrate two years of monitoring data for high priority constituents prior to the site rotating to high priority (Table 8). Furthermore, McCoy Lateral @ Hwy 140 was added to the priority schedule as a result of 2011 exceedances and in 2012 will start the first of two years of additional monitoring during months of previous exceedances required before rotating into high priority status. McCoy Lateral @ Hwy 140 (high priority years 2016-2018) is scheduled for additional monitoring in 2012 for copper (January, September and October) to demonstrate two years of monitoring data for high priority constituents prior to the site rotating to high priority (Table 8).

Table 7. 2012 Management Plan Monitoring schedule.

SITE NAME	2012 MPM YEAR	MONTH	COPPER	LEAD	CHLORPYRIFOS	DIAZINON	DIURON	C. DUBIA	P. PROMELAS	S. CAPRICORNUTUM	H. AZTECA
Bear Creek @ Kibby Rd	Year 3	January	X								
Berenda Slough along Ave 18 1/2	Year 2	January	X								
Cottonwood Creek @ Rd 20	Year 3	January	X		X		X				
Deadman Creek @ Gurr Rd	Year 1	January	X						X		
Deadman Creek @ Hwy 59	Year 1	January								X	
Dry Creek @ Rd 18	Year 2	January	X				X			X	
Duck Slough @ Gurr Rd	Year 3	January	X								
Highline Canal @ Hwy 99	Year 3	January	X		X		X				
Livingston Drain @ Robin Ave	Year 2	January	X	X	X						
Prairie Flower Drain @ Crows Landing Rd	Year 4	January								X	
Bear Creek @ Kibby Rd	Year 3	February	X								
Berenda Slough along Ave 18 1/2	Year 2	February	X								
Cottonwood Creek @ Rd 20	Year 3	February	X		X	X	X				
Deadman Creek @ Gurr Rd	Year 1	February	X					X	X	X	
Dry Creek @ Rd 18	Year 2	February	X		X	X	X			X	
Dry Creek @ Wellsford Rd	Year 4	February	X				X			X	
Duck Slough @ Gurr Rd	Year 3	February	X					X			
Duck Slough @ Hwy 99	Year 4	February	X								
Highline Canal @ Hwy 99	Year 3	February	X	X	X		X			X	
Hilmar Drain @ Central Ave	Year 1	February	X								
Livingston Drain @ Robin Ave	Year 2	February	X	X						X	
Prairie Flower Drain @ Crows Landing Rd	Year 4	February								X	
Deadman Creek @ Gurr Rd	Year 1	March			X			X	X		
Dry Creek @ Rd 18	Year 2	March									X
Dry Creek @ Wellsford Rd	Year 4	March								X	X
Duck Slough @ Gurr Rd	Year 3	March						X			
Highline Canal @ Hwy 99	Year 3	March						X		X	X
Hilmar Drain @ Central Ave	Year 1	March									X
Prairie Flower Drain @ Crows Landing Rd	Year 4	March						X			X
Bear Creek @ Kibby Rd	Year 3	May			X			X			
Bear Creek @ Kibby Rd	Year 3	July			X			X			
Bear Creek @ Kibby Rd	Year 3	August	X								

"X" indicates when a sample was collected for a particular constituent.

Table 8. 2012 Additional monitoring schedule for Assessment sites with new management plans.

SITE NAME	YEAR	MONTH	COPPER	CHLORPYRIFOS
McCoy Lateral @ Hwy 140	2012	January	X	
Howard Lateral @ Hwy 140	2012	April	X	
Howard Lateral @ Hwy 140	2012	June		X
Howard Lateral @ Hwy 140	2012	July	X	
McCoy Lateral @ Hwy 140	2012	September	X	
Howard Lateral @ Hwy 140	2012	October	X	
McCoy Lateral @ Hwy 140	2012	October	X	

PERFORMANCE GOALS AND SCHEDULES

The Coalition Strategic Plan is outlined in the original Management Plan (approved on November 25, 2008) in Table 18, pages 77-79 and is designed to meet the following management goal:

“To continue to monitor and analyze the water and sediment quality of ESJWQC site subwatersheds and to facilitate the implementation of management practices by providing outreach and support to growers in order to effectively enhance water quality in the Coalition region.”

The Coalition developed High Priority Site Subwatershed Performance Goals (hereafter referred to as Performance Goals) for its first four sets of high priority site subwatersheds: first priority subwatersheds (2008-2010), second priority subwatersheds (2010- 2012), third priority subwatersheds (2011-2013) and fourth priority subwatersheds (2012-2014). Performance Goals are submitted for approval each time a new set of subwatersheds rotates into high priority status and are built on the following actions essential to the Management Plan strategy:

1. Determine number/type of management practices currently in place, based on Assessor Parcel Number (APN) associated with baseline survey responses
2. Grower Group Contacts / Individual Contacts
3. Implementation of new management practices
4. Assess number/type of new management practices implemented
5. Evaluate effectiveness of new management practices

Performance Goals were approved by the Regional Board as amendments to the ESJWQC Management Plan on June 16, 2009 (first priority subwatersheds), June 8, 2010 (second priority subwatersheds), November 17, 2010 (third priority subwatersheds) and November 14, 2011 (fourth priority subwatersheds). The following sections describe the Coalition actions to meet the approved Performance Goals and the status of each of the Performance Goals along with associated measures/outputs.

First Priority Subwatersheds (2008 – 2010)

The amended Performance Goals for the first priority subwatersheds are presented in Table 9 (details and amendments are discussed in detail in the schedule extension request submitted on June 5, 2009 and approved on June 8, 2010). The updated management practices survey, outreach, implementation and evaluation tracking schedule is included in Table 10.

Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified from February to August 2009.

The Coalition’s strategy for identifying target growers within the high priority subwatersheds includes selecting a subset of parcels adjacent to the waterways with:

1. the potential for direct drainage to the waterway (identified using GIS),
2. the potential for spray drift to reach the waterway, and
3. applications of priority pesticides (based on PURs).

The Coalition may omit members and their associated parcels from the target list if it is determined that the parcel does not drain into the waterbody, the grower is not currently farming the parcel(s), there is no reported pesticide use, and/or the land is pasture only with no pesticide use.

In the Dry Creek @ Wellsford Rd, Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd site subwatersheds, there were 25, 24 and 11 targeted members, respectively. In the 2010 MPUR, the Coalition reported contacting and receiving management practice information from 22 growers within the Dry Creek @ Wellsford Rd subwatershed. The number of total contacts was updated from 22 to 25 growers because two growers who failed to respond to the Coalition's contacts eventually responded and met with Coalition representatives to document current (2009) management practices. An additional grower within the Dry Creek @ Wellsford Rd subwatershed was identified and contacted in 2010 due to recent enrollment in the Coalition, direct drainage potential and proximity to the Dry Creek @ Wellsford Rd monitoring location. Due to the added three members, the acreage represented by individual contacts increased from 6,116 to 6,392. The numbers of contacted growers did not change for Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd since the 2010 MPUR.

Performance Goal 2: Establish current practices August 15, 2009 on adjacent properties to waterways or where discharges are identified.

Performance Goal 2 was completed by the required date as reported in the 2010 MPUR (Table 11, pages 36-37). The actions taken by the Coalition to meet this performance goal by August 15, 2009 were described in the 2010 MPUR including dates of contacts. As described under Performance Goal 1, the Coalition contacted an additional three growers: two growers were going to be dropped from the Coalition for not completing a survey but later complied and one joined the Coalition in 2010.

The Coalition contacted 100% of the targeted growers and recorded 100% of management practice information in an Access database. A summary of currently implemented and recommended management practices is included in the First Priority Subwatersheds Summary of Management Practices section of this report.

Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.

All current and recommended practices were recorded in an Access database and were summarized in the section First Priority Subwatersheds Summary of Management Practices. The Coalition conducted follow up meetings and phone calls to obtain information regarding practices that were implemented in 2009 and 2010 (Table 16). The Coalition followed up with all growers who indicated that they planned to implement additional practices.

Performance Goal 4: Evaluate effectiveness of the new management practices implemented during 2009 and 2010.

The Coalition evaluates the effectiveness of new management practices by reviewing water quality monitoring results collected during years after implementation of new management practices (2010 and 2011). Those results are then compared to monitoring results from years prior to implementation of

new practices in the first priority subwatersheds (refer to the Evaluation of Management Practice Effectiveness section of this report).

Water quality results for MPM conducted in 2011 within each subwatershed are included in the High Priority Subwatershed Analysis Appendix (Appendix I) and are tabulated in Tables 2 and 3. The Coalition is monitoring all first priority sites an additional year for management plan constituents and will update its evaluation of management practice effectiveness to include monitoring results from 2012 in the 2013 MPUR. This additional year of monitoring in the first priority subwatersheds will allow the Coalition to assess water quality due to initial delays in management practice implementation.

Performance Goal 5: Consult with the Central Valley Regional Water Quality Control Board (CVRWQCB or Regional Board) at least once during 2008/2009 to discuss Management Plan activities and consider if changes need to be made in Management Plan for High Priority waterbodies.

The Coalition met with Regional Board staff to discuss the Management Plan activities for high priority waterbodies; topics included status of individual contacts, survey completion and extension to time lines for completing Performance Goals in 2009 and 2010. Quarterly meeting dates from 2009 were reported in the 2010 MPUR (Table 10, page 34). The Coalition continues to discuss Management Plan activities with the Regional Board during meetings; quarterly meetings held in 2011 are listed in Table 14.

Table 9. High Priority Performance Goals status for 2008-2010 high priority subwatersheds (Dry Creek @ Wellsford, Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd), updated on June 5, 2009 and approved on June 16, 2009.

Performance Goal/Performance Measure	Outputs	Who	Status as of April 1, 2012 ¹		
			Dry Creek @ Wellsford	Duck Slough @ Hwy 99	Prairie Flower Drain @ Crows Landing Rd
Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified from February to August 2009.					
Performance Measure 1.1. – 100% of targeted growers contacted.	Report ratio of individual contacts made versus total growers identified with discharges.	Parry Klassen	25 of 25 (100%)	24 of 24 (100%)	11 of 11 (100%)
Performance Measure 1.2 – Contact owners/operators representing at least 1,000 acre of membership acreage in the site subwatershed.	Report ratio of acreage represented by individual contacts versus total subwatershed acreage ² .	MLJ-LLC	6,392 of 23,331 ³ (27%)	4,016 of 10,695 ³ (38%)	865 of 3,611 ³ (24%)
Performance Goal 2: Establish current practices by August 15, 2009, on adjacent properties to waterways or where discharges are identified.					
Performance Measure 2.1 – Obtain current management practice information from 100% of targeted growers.	Completed individual contact checklists recorded in an Access database.	Parry Klassen	25 of 25 (100%)	24 of 24 (100%)	11 of 11 (100%)
Performance Measure 2.2 – Document current management practices of the targeted growers during individual contacts and encourage the adoption of new practices not currently implemented.	Record of management practices used that may reduce agricultural impact on water quality.	MLJ-LLC	25 of 25 (100%)	24 of 24 (100%)	11 of 11 (100%)
Performance Measure 2.3 – Document management practices targeted grower was encouraged to implement.	Summary of management practice evaluations on a site subwatershed level in the Management Plan update (April 2010).	MLJ-LLC	Complete	Complete	Complete
Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.					
Performance Measure 3.1 – By February 2011, document additional management practices implemented by targeted growers.	Summary of management practices implemented as a result of individual contacts.	Parry Klassen/MLJ-LLC	Complete	Complete	Complete
Performance Goal 4: Evaluate effectiveness of the new management practices implemented during 2009 and 2010.					
Performance Measure 4.1 – Assess water quality results from Coalition monitoring locations within the priority site subwatersheds.	Summary of 2009 and 2010 water quality data from site subwatershed (April 2010 and 2011).	MLJ-LLC	2010-2011 Summary Complete April 1, 2012 ⁴	2010-2011 Summary Complete April 1, 2012 ⁴	2010-2011 Summary Complete April 1, 2012 ⁴
Performance Goal 5: Consult with CVRWQCB at least once during 2008/2009 to discuss Management Plan activities and consider if changes need to be made in Management Plan strategy for high priority waterbodies.					

¹Acreage has been updated; total irrigated acreages have been updated to be more accurate by updating GIS parcel layers (actual parcels did not change).

²Performance Goal states that 'total subwatershed acreage' was reported; however, the Coalition reported overall irrigated acres for the first priority subwatersheds.

³Irrigated acreage for 1st Priority Subwatersheds comes from 2008/2009 parcel data layers.

⁴The Coalition will continue MPM at Dry Creek @ Wellsford Rd, Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd to assess water quality improvements.

Table 10. Updated Management Practices survey, outreach, implementation and evaluation tracking schedule to reflect status as of April 1, 2012 (based on the table submitted with the ESJWQC schedule extension request submitted on June 5, 2009 and approved on June 8, 2010).

PRIORITY SUBWATERSHED EVALUATION OF MANAGEMENT PRACTICES	DRY CREEK @ WELLSFORD RD		DUCK SLOUGH @ HWY 99		PRAIRIE FLOWER DRAIN @ CROWS LANDING RD	
	2009 Schedule	Status as of April 1, 2012	2009 Schedule	Status as of April 1, 2012	2009 Schedule	Status as of April 1, 2012
1a) Associate baseline survey responses with member APNs.	Completed	Completed	Completed	Completed	Completed	Completed
1b) Determine number/type of management practices currently in place.	Completed	Completed	Completed	Completed	Completed	Completed
2a) Group Grower Contacts	Completed	Completed	Completed	Completed	No grower group contact scheduled	No grower group contact scheduled
2b) Individual Contacts	February – August 15, 2009	Completed	February – September 30, 2009	Completed	February – September 30, 2009	Completed
3) Implementation of new management practices.	October 2009 – April 2010	Completed ¹	October 2009 – April 2011	Completed ¹	October 2009 – April 2011	Completed ¹
4) Assess number/type of new management practices implemented.	October 2009 - February 2010	Completed ¹	October 2009 - February 2010	Completed ¹	October 2009 - February 2010	Completed ¹
5) Evaluate effectiveness of new management practices.	April 2009 - February 2011	Completed ²	April 2009 - February 2011	Completed ²	April 2009 - February 2011	Completed ²

¹Management practices have been implemented and documented with follow up surveys in all three first priority subwatersheds; however, due to an additional contact in Dry Creek during 2010 (new member) and the potential for additional funding in all three subwatersheds, there may be new management practices implemented in 2011 and 2012 that could improve water quality.

² An evaluation of the Coalition's water quality data collected in 2011 compared to implemented management practices in all three subwatersheds can be reviewed in the Evaluation of Management Practice Effectiveness section of this report.

Second Priority Subwatersheds (2010 – 2012)

Performance Goals, measures, outputs and completion dates for second priority subwatersheds are included in Table 11 and were approved by the Regional Board on June 8, 2010.

Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.

One hundred percent of targeted members were contacted by May 30, 2010 as scheduled in the second priority subwatershed Performance Goal 1 (Table 11). The Coalition initiated contacts to second priority subwatershed targeted members with conference calls to discuss member responsibilities, management plan strategies and initiate scheduling of visits with growers (Table 16). Following these conference calls, the Coalition sent mailings to targeted growers in Cottonwood Creek @ Rd 20 and Highline Canal @ Hwy 99 (both on November 10, 2009) and Bear Creek @ Kibby Rd and Duck Slough @ Gurr Rd (both on April 28, 2010) subwatersheds (Table 16). The mailings also informed growers about the Coalition's Management Plan strategy, member responsibilities and requested that growers call the Coalition to schedule meetings for individual interviews.

A total of 55 growers were contacted by May 30, 2010 representing 10,084 acres or 42% of the acreage determined to have the potential for direct drainage in the four second priority subwatersheds (Table 11). Of the four subwatersheds, Duck Slough @ Gurr Rd had the highest percent of acreage represented by contacted growers (46%) followed by Cottonwood Creek @ Rd 20 (45%), Highline Canal @ Hwy 99 (33%) and Bear Creek @ Kibby Rd (31%, Table 11).

Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.

The Coalition met with and documented current management practices for 100% of targeted growers within the Bear Creek @ Kibby Rd, Cottonwood Creek @ Rd 20, Duck Slough @ Gurr Rd and Highline Canal @ Hwy 99 subwatersheds (Table 11). As detailed in the Management Practices section of this report, surveys document current management practices regarding irrigation management, storm water runoff, erosion and sediment management, pest management and dormant sprays (when applicable). One hundred percent of the management practices documented on the surveys filled out by growers during meetings have been recorded in an Access database (Table 11).

A summary of currently implemented and recommended management practices is included in the Second Priority Subwatersheds Summary of Management Practices section of this report.

Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.

One hundred percent of the management practices recommended to growers to implement in 2010 and 2011 are recorded in an Access database (Table 11). The Coalition submitted an amendment to the 2011 MPUR on June 27, 2011 reporting newly implemented management practices for the second priority subwatersheds based on follow up results that had been received at that time. A summary of

both recommended and newly implemented management practices is included in the Second Priority Subwatersheds Summary of Management Practices section of this report.

Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.

The Coalition conducted MPM in the second high priority site subwatersheds during 2011 and will continue monitoring in 2012 to assess water quality improvements that occurred since these subwatersheds have become high priority. Water quality results for MPM for each subwatershed are included in the High Priority Subwatershed Analysis Appendix I.

The Coalition conducts follow up meetings with growers between February 1 and April 30th to determine what management practices were implemented in the previous year (Table 11). The Coalition initiated follow up contacts with growers in April 2011 (April 26 and 28, 2011) to record new practices that were implemented in 2010 and used data gathered from follow up contacts and recent water quality results (2011) to evaluate the effectiveness of management practices (Table 16). The Coalition will conduct MPM at all second high priority sites during 2012 and will update its evaluation of management practice effectiveness to include monitoring results from 2012 in the 2013 MPUR.

Due to additional funds available for structural management practices through a Proposition 84 (Prop 84) grant and other funding sources, it is anticipated that additional management practices may be implemented in these subwatersheds resulting in a reduction of discharges of management plan constituents. The Coalition believes continued MPM during 2012 will provide data to assess if additional funding and additional implemented management practices are improving water quality (see Coalition Wide Evaluation section of this report).

Performance Goal 5: Consult with the CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in the Management Plan strategy for high priority waterbodies.

The Coalition met with the Regional Board quarterly to discuss Coalition activities in relation to the second high priority subwatersheds in February, May, September and November 2010. Quarterly meeting dates from 2010 were reported in the 2011 MPUR (Table 10, page 30). The Coalition continues to discuss Management Plan activities with the Regional Board during meetings; quarterly meetings held in 2011 are listed in Table 14.

Table 11. High Priority Performance Goals status for 2010 - 2012 high priority subwatersheds (Cottonwood Creek @ Rd 20, Highline Canal @ Hwy 99, Duck Slough @ Gurr Rd and Bear Creek @ Kibby Rd), approved on June 8, 2010.

Performance Goal/Performance Measure	Outputs	Who	STATUS AS OF APRIL 1, 2012 ¹			
			COTTONWOOD CREEK @ Rd 20	HIGHLINE CANAL @ Hwy 99	DUCK SLOUGH @ GURR Rd	BEAR CREEK @ KIBBY Rd
Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.						
Performance Measure 1.1 – 100% of identified growers contacted to fill out surveys.	Report ratio of individual initial contacts made versus total growers identified to contact.	Parry Klassen	25 of 25 (100%)	10 of 10 (100%)	6 of 6 (100%)	14 of 14 (100%)
Performance Measure 1.2 – Contact owners/operators representing at least 1,000 acre of membership acreage in the site subwatershed (if subwatershed is greater than 800 acres).	Report ratio of acreage represented by individual contacts versus subwatershed acreage determined to have direct drainage.	MLJ-LLC	5,768 of 12,940 ² (45%)	368 of 1,106 ² (33%)	2,656 of 5,761 ² (46%)	1,292 of 4,179 ² (31%)
Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.						
Performance Measure 2.1 – Document current management practices of 100% of identified growers during individual contacts and encourage the adoption of new practices not currently implemented.	Record in an Access database current management practices used that may reduce agricultural impact on water quality.	Parry Klassen	25 of 25 (100%)	10 of 10 (100%)	6 of 6 (100%)	14 of 14 (100%)
Performance Measure 2.2 – Document management practices that the identified growers were encouraged to implement.	Summary of management practice evaluations on a site subwatershed level in the Management Plan update.	MLJ-LLC	Complete	Complete	Complete	Complete
Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.						
Performance Measure 3.1* –Document (e.g. assess number/type) new management practices implemented by identified growers.	Record implemented management practices in an Access database.	Parry Klassen, MLJ-LLC	Complete	Complete	Complete	Complete
	Summary of management practices implemented as a result of individual contacts.	MLJ-LLC				
Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.						
Performance Measure 4.1 Update – Assess water quality results from Coalition monitoring location within the priority site subwatershed.	Summary of water quality data from Management Plan Monitoring.	MLJ-LLC	2011 Summary Complete April 1, 2012	2011 Summary Complete April 1, 2012	2011 Summary Complete April 1, 2012	2011 Summary Complete April 1, 2012
Performance Goal 5: Consult with CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in Management Plan strategy for High Priority waterbodies.						

¹County overall direct drainage acreage has been updated; acreages has been updated to be more accurate by updating GIS parcel layers (actual parcels did not change).

² Overall irrigated direct drainage acreage for 2nd Priority Subwatersheds comes from 2009/2011 parcel data layers.

*Contacts with growers to determine implemented practices will occur between February 1 and April 30; all information obtained by February 28th will be entered into an Access database and included in the following April 1 Management Plan Update Report; any additional information will be reported on during the quarterly meetings.

Third Priority Subwatersheds (2011 – 2013)

The third high priority subwatersheds include Berenda Slough along Ave 18 ½, Dry Creek @ Rd 18, Livingston Drain @ Robin Ave and Lateral 2 ½ near Keyes Rd. Performance Goals follow the same format as the second high priority subwatershed Performance Goals and were approved on November 17, 2010 (Table 12).

Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.

The Coalition contacted 100% of targeted growers in the third priority subwatersheds by March 30, 2011 as scheduled (Table 12). Letters were mailed informing growers of member responsibilities and management plan strategies (Table 16). Growers were encouraged to initiate the scheduling of individual contact meetings with the Coalition.

A total of 72 growers were contacted representing 10,974 acres or 44% of the acreage with the potential for direct drainage in the third priority subwatersheds (Table 12). Of the four subwatersheds, Dry Creek @ Rd 18 had the highest percentage of acreage represented by contacted growers (53%), followed by Lateral 2 ½ near Keyes Rd (47%), Berenda Slough along Ave 18 ½ (38%) and Livingston Drain @ Robin Ave (23%, Table 12).

Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.

The Coalition met and documented current management practices for 100% of growers within the third priority subwatersheds (Table 12). One hundred percent of the management practices documented on the surveys filled out by growers during meetings are recorded in an Access database (Table 12).

A summary of currently implemented and recommended management practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report.

Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.

One hundred percent of the management practices recommended to growers to implement in 2011 and 2012 are recorded in an Access database (Table 12). A summary of recommended management practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report.

The Coalition contacts growers who received recommendations for additional management practices for follow up between February 1 and April 30th to record newly implemented practices (Table 12).

Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.

The Coalition conducted Year 1 MPM in the third high priority subwatersheds during 2011. The Coalition Wide Evaluation section of this report discusses the water quality results from 2011 monitoring in the third priority subwatersheds during Year 1. The Coalition will also conduct MPM in the third priority subwatersheds in 2012 to assess changes in water quality.

The Coalition will evaluate the effectiveness of any new management practices implemented in 2011 and 2012 by reviewing monitoring results from previous years compared to results from 2011 and 2012. An interim evaluation of management practice effectiveness will be included in the 2013 MPUR (Table 12). It is anticipated that water quality will improve as new management practices are implemented in 2012 and 2013. If the Coalition is aware of structural management practices that will take longer than two years to implement, this information will be included in the annual updates and may result in an extension to the final evaluation of management practice effectiveness.

Performance Goal 5: Consult with the CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in the Management Plan strategy for high priority waterbodies.

The Coalition met with the Regional Board quarterly to discuss Coalition activities in relation to the third priority subwatersheds in February, May, August and November 2011 (Table 14). The Coalition continues to discuss Management Plan activities with the Regional Board during meetings.

Table 12. High Priority Performance Goals status for 2011 - 2013 high priority subwatersheds (Berenda Slough along Ave 18 ½, Dry Creek @ Rd 18, Lateral 2 ½ near Keyes Rd, Livingston Drain @ Robin Ave), approved on November 17, 2010.

Performance Goal/Performance Measure	Outputs	Who	STATUS AS OF APRIL 1, 2012			
			Berenda Slough Along Ave 18 ½	Dry Creek @ Rd 18	Lateral 2 ½ Near Keyes Rd	Livingston Drain @ Robin Ave
Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.						
Performance Measure 1.1 – 100% of identified growers contacted to fill out surveys.	Report ratio of individual initial contacts made versus total growers identified to contact.	Parry Klassen	19 of 19 (100%)	17 of 17 (100%)	25 of 25 (100%)	11 of 11 (100%)
Performance Measure 1.2 – Contact owners/operators representing at least 1,000 acre of membership acreage in the site subwatershed (if subwatershed is greater than 800 acres).	Report ratio of acreage represented by individual contacts versus subwatershed acreage determined to have direct drainage.	MLJ-LLC	4,103 of 10,742 (38%)	4,710 of 8,914 (53%)	1,826 of 3,905 (47%)	335 of 1,430 (23%)
Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.						
Performance Measure 2.1 – Document current management practices of 100% of identified growers during individual contacts and encourage the adoption of new practices not currently implemented.	Record in an Access database current management practices used that may reduce agricultural impact on water quality.	Parry Klassen	19 of 19 (100%)	17 of 17 (100%)	25 of 25 (100%)	11 of 11 (100%)
Performance Measure 2.2 – Document management practices that the identified grower were encouraged to implement.	Summary of management practice evaluations on a site subwatershed level in the Management Plan update.	MLJ-LLC	Complete April 1, 2012	Complete April 1, 2012	Complete April 1, 2012	Complete April 1, 2012
Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.						
Performance Measure 3.1 –Document (e.g. assess number/type) new management practices implemented by identified growers.	Record implemented management practices in an Access database.	Parry Klassen/MLJ-LLC	Complete Feb. 28, 2012*	Complete Feb. 28, 2012*	Complete Feb. 28, 2012*	Complete Feb. 28, 2012*
	Summary of management practices implemented as a result of individual contacts.	MLJ-LLC	In Progress: April 1, 2013	In Progress: April 1, 2013	In Progress: April 1, 2013	In Progress: April 1, 2013
Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.						
Performance Measure 4.1 Update – Assess water quality results from Coalition monitoring location within the priority site subwatershed.	Summary of water quality data from Management Plan Monitoring.	MLJ-LLC	In Progress: April 1, 2013	In Progress: April 1, 2013	In Progress: April 1, 2013	In Progress: April 1, 2013
Performance Goal 5: Consult with CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in Management Plan strategy for High Priority waterbodies.						

¹Overall irrigated direct drainage acreage for 3rd Priority Subwatersheds comes from 2006-2011 parcel data layers.

*Contacts with growers to determine implemented practices will occur between February 1 and April 30; all information obtained by February 28th will be entered into an Access database and included in the following April 1 Management Plan Update Report; any additional information will be reported on during the quarterly meetings.

Fourth Priority Subwatersheds (2012 – 2014)

Performance Goals for the next high priority site subwatersheds (Black Rascal Creek @ Yosemite Rd, Deadman Creek @ Gurr Rd, Deadman Creek @ Hwy 59 and Hilmar Drain @ central Ave) were approved on November 14, 2011 and follow the same format as Performance Goals for the second and third set of high priority subwatersheds (Table 13).

Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.

On January 24, 2011, targeted growers in Black Rascal Creek @ Yosemite Rd (one grower), Deadman Creek @ Gurr Rd (two growers), Deadman Creek @ Hwy 59 (eight growers) and Hilmar Drain @ Central Ave (three growers) were mailed initial contact letters (Table 16). As outlined in the fourth Priority Subwatersheds Summary of Management Practices section of this report, the contact letters informed growers of member responsibilities, management plan strategies and initiated the scheduling of individual meetings. All initial contacts were complete before March 30, 2012 (Table 13).

Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.

The Coalition is in the process of meeting with fourth priority growers to complete surveys that record currently implemented and recommended management practices (Table 13). To address the water quality impairments in the fourth priority subwatersheds, the Coalition is concerned with management practices that apply to irrigation water management, storm water runoff, erosion and sediment management, pest management and dormant sprays (when applicable). Upon completion, all surveys will be entered into an Access database.

Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.

After the Coalition meets with targeted growers individually and discusses local water quality concerns, sufficient time is allowed for growers to implement new management practices before follow up. The Coalition will follow up with growers in the fourth priority subwatersheds between February 1 and April 30, 2013 to document newly implemented management practices and will report its findings in future MPURs submitted annually on April 1 (Table 13). If the Coalition is aware of structural management practices that will take longer than two years to implement, this information will be included in the annual updates and may result in an extension to the final evaluation of management practice effectiveness.

Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.

The Coalition is conducting MPM in the fourth high priority sites during 2012 through 2014 to assess changes in water quality (Deadman Creek @ Hwy 59 is scheduled for Assessment Monitoring in 2012 during which all management plan constituents will be analyzed monthly). If management practices are implemented in time for 2012 MPM to document improved water quality, the Coalition will submit an interim evaluation for the third priority subwatersheds in the 2013 MPUR and a final evaluation will be

included in the 2014 MPUR (Table 13). It is anticipated that water quality will improve as new management practices are implemented. If the Coalition is aware of structural management practices that will take longer than two years to implement, this information will be included in the annual updates and may result in an extension to the final evaluation of management practice effectiveness.

Performance Goal 5: Consult with the CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in the Management Plan strategy for high priority waterbodies.

Quarterly meetings with the Regional Board to discuss Coalition activities have been scheduled for 2012 (Table 15). The Coalition has already met with Regional Board staff on March 1, 2012 for its first quarterly meeting.

All Coalition activities related to outreach (including mailings, grower meetings, individual meetings, etc.), in the first, second, third and forth priority subwatersheds are listed in Table 16.

Table 13. High Priority Performance Goals status for 2012 - 2014 high priority subwatersheds (Black Rascal Creek @ Yosemite Rd, Deadman Creek @ Gurr Rd, Deadman Creek @ Hwy 59 and Hilmar Drain @ Central Ave), approved on November 14, 2011.

Performance Goal/Performance Measure	Outputs	Who	STATUS AS OF APRIL 1, 2012 ¹			
			BLACK RASCAL CREEK @ YOSEMITE RD	DEADMAN CREEK @ GURR RD	DEADMAN CREEK @ HWY 59	HILMAR DRAIN @ CENTRAL AVE
Performance Goal 1: Individually contact members on adjacent properties to waterways where discharges have been identified to fill out surveys.						
Performance Measure 1.1 – 100% of identified growers contacted to fill out surveys.	Report ratio of individual initial contacts made versus total growers identified to contact.	Parry Klassen	1 of 1 (100%) March 30, 2012	2 of 2 (100%) March 30, 2012	8 of 8 (100%) March 30, 2012	3 of 3 (100%) March 30, 2012
Performance Measure 1.2 – Contact owners/operators in the site subwatershed with direct drainage membership acreage.	Report ratio of acreage represented by individual contacts versus subwatershed acreage determined to have direct drainage.	MLJ-LLC	301 of 1,844 (16%)	240 of 2,909 (8%)	3,414 of 11,501² (30%)	455 of 1,230 (37%)
Performance Goal 2: Establish current practices (beyond established baseline practices) on adjacent properties to waterways or where discharges are identified.						
Performance Measure 2.1 – Document current management practices of 100% of identified growers during individual contacts and encourage the adoption of new practices not currently implemented.	Record in an Access database current management practices used that may reduce agricultural impact on water quality.	Parry Klassen	In Progress: July 30, 2012	In Progress: July 30, 2012	In Progress: July 30, 2012	In Progress: July 30, 2012
Performance Measure 2.2 – Document management practices that the identified grower were encouraged to implement.	Summary of management practice evaluations on a site subwatershed level in the Management Plan update.	MLJ-LLC	In Progress: August 30, 2012	In Progress: August 30, 2012	In Progress: August 30, 2012	In Progress: August 30, 2012
Performance Goal 3: Encourage growers to implement additional management practices based on water quality results.						
Performance Measure 3.1 –Document (e.g. assess number/type) new management practices implemented by identified growers.	Record implemented management practices in an Access database.	Parry Klassen/ MLJ-LLC	In Progress: Feb. 28, 2013*	In Progress: Feb. 28, 2013*	In Progress: Feb. 28, 2013*	In Progress: Feb. 28, 2013*
	Summary of management practices implemented as a result of individual contacts.	MLJ-LLC	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014
Performance Goal 4: Evaluate effectiveness of the new management practices implemented during years that site is high priority.						
Performance Measure 4.1 Update – Assess water quality results from Coalition monitoring location within the priority site subwatershed.	Summary of water quality data from Management Plan Monitoring.	MLJ-LLC	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014	In Progress: April 1, 2013/2014
Performance Goal 5: Consult with CVRWQCB at least once to discuss Management Plan activities and consider if changes need to be made in Management Plan strategy for High Priority waterbodies.						

¹Overall irrigated direct drainage acreage for 4th Priority Subwatersheds comes from 2011 parcel data layers.

²Overall irrigated direct drainage acreage for Deadman Creek @ Hwy 59 represents the Merced County portion of the subwatershed only.

*Contacts with growers to determine implemented practices will occur between February 1 and April 30; all information obtained by February 28th will be entered into an Access database and included in the following April 1 Management Plan Update Report; any additional information will be reported on during the quarterly meetings.

Table 14. 2011 Regional Board Quarterly Meeting dates.

QUARTERLY MEETINGS	MEETING DATE
First Quarter Meeting	February 8, 2011
Second Quarter Meeting	May 3, 2011
Third Quarter Meeting	August 2, 2011
Fourth Quarterly Meeting	November 2, 2011

Table 15. 2012 Regional Board Quarterly Meeting dates (subject to change).

QUARTERLY MEETINGS	MEETING DATE
First Quarter Meeting	March 1, 2012
Second Quarter Meeting	June 5, 2012
Third Quarter Meeting	TBD
Fourth Quarterly Meeting	TBD

TBD-To be determined

Table 16. Coalition outreach in high priority subwatersheds.

Categories of outreach include Management Practice Tracking, Best Management Practice (BMP) Outreach and Education, Grower Notification, Collaborations and Special Studies.

AREA	DATE	CATEGORY	DETAILS	WHO
Dry Creek @ Wellsford (1st P)	January - August 2009	Management Practice Tracking, BMP Outreach and Education	Individual contact with targeted growers in Dry Creek subwatershed (current management practice evaluation).	Parry Klassen, Wayne Zipser
Duck Slough @ Hwy 99 (1st P)	May - August 2009	Management Practice Tracking, BMP Outreach and Education	Individual contact with targeted growers in Duck Slough (above Hwy 99) subwatershed (current management practice evaluation).	Parry Klassen, Wayne Zipser
Prairie Flower Drain (1st P)	June - September 2009	Management Practice Tracking, BMP Outreach and Education	Individual contact with targeted growers in Prairie Flower Drain subwatershed (current management practice evaluation).	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford, Duck Slough @ Hwy 99, Prairie Flower Drain (1st P)	4-Jun-09	Management Practice Tracking, Grower Notification	Mailing to 25 members in high priority site subwatersheds to notify members that individual meetings are required for 100% of growers near or adjacent to the waterways and members are responsible for scheduling individual contact meetings via provided contact information in mailing. Additionally, an email containing the same information was sent to 13 high priority members on June 1, 2009.	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford, Duck Slough @ Hwy 99, Prairie Flower Drain (1st P)	23-Jun-09	Management Practice Tracking, Grower Notification	Follow-up mailing to June 4 mailing regarding scheduling individual meetings; sent to all growers who had not yet scheduled an individual meeting urging members to do so and providing in a supplementary Regional Board letter an explanation of the consequences for members and the Coalition if the meetings are not conducted.	Parry Klassen, Wayne Zipser
Stanislaus and Merced Counties	30-Jul-09	Management Practice Tracking, Collaborations and Special Studies	USDA announced Jul. 30, 2009 an award of \$2 million annually over 5 years (\$10 million total) funded by the Agricultural Water Enhancement Program (AWEP) created in the 2008 Farm Bill. The money will aid in installation of Management Practices and be directed to farms and dairies with operations bordering waterways within subwatersheds covered by Management Plans in the two county regions.	Parry Klassen/CURES; ESJQWC; Westside San Joaquin River Watershed Coalition; NRCS; West and East Stanislaus Resource Conservation District
Dry Creek @ Wellsford, Duck Slough @ Hwy 99, Prairie Flower Drain (1st P)	6-Aug-09	Management Practice Tracking, Grower Notification	Mailing to 226 members in high priority subwatersheds announcing that the USDA recently approved \$2 million annually in grants over the next 5 years for projects intended to improve water quality of waterways in Stanislaus and Merced counties; includes details of eligibility, requirements, and application process.	Parry Klassen
Cottonwood Creek (2nd P)	14-Oct-09	Management Practice Tracking, Grower Notification	Letter mailed to all members with parcels adjacent to Cottonwood Creek announcing two conference call meetings (Oct. 21st @ 11AM and Oct. 22nd @ 4PM) to inform growers about requirements for and initiate the scheduling of individual contact meetings.	Parry Klassen, Wayne Zipser
Cottonwood Creek (2nd P)	21 and 22-Oct-09	Management Practice Tracking, BMP Outreach and Education	Conference call meeting to inform growers about the Cottonwood Creek Management Plan, specifically member participation requirements and to initiate the scheduling of individual contact meetings. A total of four members were represented.	Parry Klassen
Cottonwood Creek, Highline Canal @ Hwy 99 (2nd P)	10-Nov-09	Management Practice Tracking, Grower Notification	Mailing to all targeted Cottonwood Creek members who did not participate in the conference call and to all targeted Highline Canal @ Hwy 99 members to inform growers of the need to schedule individual meetings.	Parry Klassen, Wayne Zipser
Duck Slough @ Hwy 99 (1st P)	9-Feb-10	Management Practice Tracking, Grower Notification	Duck Slough Follow-Up to 2009 Individual Contacts Meeting Announcement Mailing: sent to all members who participated in an individual meeting during 2009.	Parry Klassen
Dry Creek @ Wellsford (1st P)	15-Feb-10	Management Practice Tracking, Grower Notification	Dry Creek Follow-Up to 2009 Individual Contacts Meeting Announcement Mailing: sent to all members who participated in an individual meeting during 2009.	Parry Klassen

AREA	DATE	CATEGORY	DETAILS	WHO
Prairie Flower Drain (1st P)	17-Feb-10	Management Practice Tracking, Grower Notification	Prairie Flower Drain Follow-Up to 2009 Individual Contacts Meeting Announcement Mailing: sent to all members who participated in an individual meeting during 2009.	Parry Klassen
Duck Slough @ Hwy 99 (1st P)	19-Feb-10	Management Practice Tracking, BMP Outreach and Education	Duck Slough Follow-Up to 2009 Individual Contacts Grower Meeting: 11 members in attendance. By using the Turning Interactive Survey Devices, assessed implementation of management practices since individual contact meetings in 2009.	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford (1st P)	26-Feb-10	Management Practice Tracking, BMP Outreach and Education	Dry Creek Follow-Up to 2009 Individual Contacts Grower Meeting: 13 members in attendance. By using the Turning Interactive Survey Devices, assessed implementation of management practices since individual contact meetings in 2009.	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford, Duck Slough @ Hwy 99, Prairie Flower Drain (1st P)	1-Mar through 4-Aug-10	Management Practice Tracking, BMP Outreach and Education	Phone call to assess management practice implementation of all targeted members with recommended practices for 2009 that did not attend their respective subwatershed follow-up meeting (8 members total).	Parry Klassen
Prairie Flower Drain (1st P)	19-Mar-10	Management Practice Tracking, BMP Outreach and Education	Prairie Flower Drain Follow-Up to 2009 Individual Contacts Grower Meeting: 3 members in attendance. By using the Turning Interactive Survey Devices, assessed implementation of management practices since individual contact meetings in 2009.	Parry Klassen, Wayne Zipser
Bear Creek @ Kibby, Duck Slough @ Gurr (2nd P)	28-Apr-10	Management Practice Tracking, Grower Notification	Individual Contacts Meeting Announcement Mailing: 13 growers in Bear Creek @ Kibby subwatershed and 6 growers in Duck Slough @ Gurr subwatershed. Letter mailed to notify growers of the management plan high priority tracking process and that they need to schedule an individual meeting with Parry Klassen or Wayne Zipser.	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford, Duck Slough @ Hwy 99, Prairie Flower Drain (1st P)	24-Aug-10	Management Practice Tracking, Grower Notification	Results from Individual Contact Meeting Confirmation Mailing: sent to all members whom participated in individual contacts. The mailing summarized management practice implementations and recommendations recorded during each grower's Individual Contact Meeting. Growers reviewed their responses for accuracy and made corrections if necessary.	Parry Klassen
Lateral 2 1/2 @ Keyes Rd, Livingston Drain @ Robin Ave, Bear Creek @ Kibby, Dry Creek @ Wellsford Rd (1st, 2nd, and 3rd P)	8-Nov-10	Management Practice Tracking, Grower Notification	Individual Contacts Meeting Announcement Mailing: 27 growers in Lateral 2 1/2 @ Keyes Rd subwatershed (1st portion), 11 growers in Livingston Drain @ Robin Ave subwatershed, 3 growers in Bear Creek @ Kibby subwatershed (additional members), and 2 growers in Dry Creek @ Wellsford subwatershed (additional members). Letter mailed to notify growers of the management plan high priority tracking process and that they need to schedule an individual meeting with Parry Klassen or Wayne Zipser.	Parry Klassen, Wayne Zipser
Dry Creek @ Rd 18 (3rd P)	22-Nov-10	Management Practice Tracking, Grower Notification	Individual Contacts Meeting Announcement Mailing: 18 growers in Dry Creek @ Road 18 subwatershed. Letter mailed to notify growers of the management plan high priority tracking process and that they need to schedule an individual meeting with Parry Klassen or Wayne Zipser.	Parry Klassen, Wayne Zipser
Dry Creek @ Wellsford and Duck Slough @ Hwy 99 (1st P)	5-Jan through 28-Feb-11	Management Practice Tracking, BMP Outreach and Education	Phone call to assess management practice implementation of all targeted members with recommended practices for 2010 (8 members total).	Wayne Zipser
Highline Canal @ Hwy 99 (2nd P)	1-Feb-11	Management Practice Tracking, Grower Notification	Highline Canal @ Hwy 99 Follow-Up to Individual Contacts (Initial) Meeting Announcement Mailing: sent to 9 members who participated in an individual meeting during 2009 and 2010. Meeting rescheduled to better accommodate growers' schedules.	Parry Klassen, Wayne Zipser

AREA	DATE	CATEGORY	DETAILS	WHO
Cottonwood Creek (2nd P)	15-Feb-11	Management Practice Tracking, Grower Notification	Cottonwood Creek Follow-Up to Individual Contacts (Initial) Meeting Announcement Mailing: sent to 24 members who participated in an individual meeting during 2009 and 2010. Meeting rescheduled to better accommodate growers' schedules.	Parry Klassen, Wayne Zipser
Bear Creek and Duck Slough @ Gurr (2nd P)	16-Feb-11	Management Practice Tracking, Grower Notification	Bear Creek and Duck Slough @ Gurr Follow-Up to Individual Contacts (Initial) Meeting Announcement Mailing: sent to 14 and 6 members, respectively, who participated in an individual meeting during 2009 and 2010. Meeting rescheduled to better accommodate growers' schedules.	Parry Klassen, Wayne Zipser
Berenda Slough (3rd P)	9-Mar-11	Management Practice Tracking, Grower Notification	Berenda Slough Individual Contacts Meeting Announcement Mailing: sent to 22 targeted growers. Alerted targeted members of the Management Plan high priority tracking process and the need to schedule an individual meeting with Parry Klassen or Wayne Zipser.	Parry Klassen, Wayne Zipser
Cottonwood Creek (2nd P)	14-Apr-11	Management Practice Tracking, Grower Notification	Rescheduled Cottonwood Creek Follow-Up to Individual Contacts Meeting Announcement Mailing: sent to all members who participated in an individual meeting during 2009 and 2010.	Parry Klassen, Wayne Zipser
Bear Creek, Duck Slough @ Gurr, Highline Canal @ Hwy 99 (2nd P)	14-Apr-11	Management Practice Tracking, Grower Notification	Rescheduled Bear Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 Follow-Up to Individual Contacts Meeting Announcement Mailing: sent to all members who participated in an individual meeting during 2009 and 2010.	Parry Klassen, Wayne Zipser
Cottonwood Creek (2nd P)	26-Apr-11	Management Practice Tracking, BMP Outreach and Education	Rescheduled Cottonwood Creek Follow Up to Individual Contacts Grower Meeting: 14 growers were represented in attendance. By using the Turning Interactive Survey Devices, assessed implementation of management practices since individual contact meetings in 2009 and 2010.	Parry Klassen, Wayne Zipser
Bear Creek, Duck Slough @ Gurr, Highline Canal @ Hwy 99 (2nd P)	28-Apr-11	Management Practice Tracking, BMP Outreach and Education	Rescheduled Bear Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 Follow Up to Individual Contacts Grower Meeting: 3, 4, and 3 growers from each subwatershed were represented in attendance, respectively. By using the Turning Interactive Survey Devices, assessed implementation of management practices since individual contact meetings in 2009 and 2010.	Parry Klassen, Wayne Zipser
Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 (2nd P)	11-May-11	Management Practice Tracking, BMP Outreach and Education	Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 Follow Up to Individual Contacts Email: 7, 3, 1, and 4 growers from each subwatershed, respectively, completed the Online Follow Up Survey Form assessing implementation of new management practices.	Parry Klassen, Wayne Zipser
Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 (2nd P)	20-May-11	Management Practice Tracking, BMP Outreach and Education	Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 Follow Up to Individual Contacts Mailing: 4, 5, 1, and 1 growers from each subwatershed, respectively, completed and returned the Follow Up Survey assessing implementation of new management practices.	Parry Klassen, Wayne Zipser
Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 (2nd P)	1-Jun-11	Management Practice Tracking, Grower Notification	Bear Creek, Cottonwood Creek, Duck Slough @ Gurr, and Highline Canal @ Hwy 99 Follow Up to Individual Contacts - Final Attempt to Contact Mailing: sent to 9, 7, 2, and 4 members, respectively. Letter reminded members of their responsibility to provide the Coalition with requested management practice information and indicated if a response was not received by July 31, 2011, the member would be dropped from the Coalition.	Parry Klassen, Wayne Zipser

AREA	DATE	CATEGORY	DETAILS	WHO
Livingston Drain @ Robin Ave (3rd P)	7-Nov-11	Management Practice Tracking, Grower Notification	Livingston Drain @ Robin Ave Initial Contact Grower Survey - Final Attempt to Contact Mailing: sent to 7 growers. Letter reminded members of their responsibility to provide the Coalition with requested management practice information and indicated if a response was not received by Nov. 30, 2011, the member would be dropped from the Coalition.	Parry Klassen, Wayne Zipser
Berenda Slough, Dry Creek @ Rd 18, Lateral 2 1/2, and Livingston Drain (3rd P)	15-Nov-11	Management Practice Tracking, Grower Notification	3rd Priority Results from Individual Contact Meeting Confirmation Mailing: sent to all members whom participated in individual contacts. The mailing summarized management practice implementations and recommendations recorded during each grower's Individual Contact Meeting. Growers reviewed their responses for accuracy and made corrections if necessary.	Parry Klassen, Wayne Zipser
Black Rascal Creek, Deadman Creek @ Gurr, Deadman Creek @ Hwy 59, and Hilmar Drain (4th P)	24-Jan-12	Management Practice Tracking, Grower Notification	Individual Contacts Meeting Announcement Mailing: sent to 1, 2, 8, and 4 targeted growers in Black Rascal Creek, Deadman Creek @ Gurr, Deadman Creek @ Hwy 59, and Hilmar Drain, respectively. Alerted targeted members of the Management Plan high priority tracking process and the need to schedule an individual meeting with Parry Klassen or Wayne Zipser.	Parry Klassen, Wayne Zipser

MANAGEMENT PRACTICES

The Coalition documents current management practices, recommended management practices and newly implemented practices based on individual contacts and survey results for each high priority site subwatershed. The Coalition identified eight general classifications of management practices that would be effective at reducing the impacts of agricultural discharges on water quality including:

1. Reduction in application rates,
2. Spray drift management,
3. Change to low risk products,
4. Polyacrylamide (PAM),
5. Drip or microspray irrigation,
6. Recirculation/tailwater return system,
7. Retention pond/holding basin, and
8. Grass waterways or grass filter strips.

The non structural practices (practices 1-4) can be implemented sooner than structural practices (practices 5-8) as structural practices may require the grower secure additional resources for implementation. The Coalition makes various efforts to inform growers of resources available for management practice implementation (discussed in past AMRs in the Actions Taken to Address Exceedances sections and summarized briefly in the Evaluation of Management Practice Effectiveness). In addition, the Coalition was mindful of the practice implementation timeline as it planned its strategy and schedule to contact growers.

The Coalition successfully completed contacts and outreach in the first priority subwatersheds (Dry Creek @ Wellsford Rd, Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd). The 2011 MPUR contained a final evaluation of current and recommended practices for all three subwatersheds as well as a final evaluation of newly implemented practices in the Prairie Flower Drain @ Crows Landing Rd subwatershed. However, because additional follow up contacts had yet to be completed in the Dry Creek @ Wellsford Rd and Duck Slough @ Hwy 99, only a preliminary analysis of newly implemented practices for those two subwatersheds was included in the 2011 MPUR. The following sections contain the final analysis of newly implemented management practices in the Dry Creek @ Wellsford Rd and Duck Slough @ Hwy 99 subwatersheds as well as a brief summary of focused outreach in the Prairie Flower Drain @ Crows Landing Rd subwatershed.

In the fall of 2009, the Coalition began contacting members in the second priority subwatersheds (Bear Creek @ Kibby Rd, Cottonwood Creek @ Rd 20, Duck Slough @ Gurr Rd and Highline Canal @ Hwy 99). The Coalition reported a preliminary analysis of current and recommended management practices in the 2011 MPUR. Follow up meetings with growers to identify practices implemented in 2010 occurred during the spring of 2011 and were completed by end of the 2011 irrigation season. Per the Regional Board's request, the Coalition submitted an interim summary of follow up contacts in an amendment to

the 2011 MPUR (submitted June 27, 2011). The following sections contain a final analysis of the current, recommended and newly implemented management practices based on survey information and follow up contacts with growers in the second priority subwatersheds.

In the fall of 2010 and winter of 2011, the Coalition began individual contacts with members in the third priority subwatersheds (Berenda Slough along Ave 18 1/2, Dry Creek @ Rd 18, Lateral 2 ½ near Keyes Rd and Livingston Drain @ Robin Ave). Individual meetings with 100% of targeted growers were completed during 2011. The following sections provide a preliminary analysis of the current and recommended practices in third priority subwatersheds, and a complete analysis of the third priority subwatersheds implemented practices will be included in the 2013 MPUR.

The Coalition initiated focused outreach in the fourth priority subwatersheds (Black Rascal Creek @ Yosemite Rd, Deadman Creek @ Gurr Rd, Deadman Creek @ Hwy 59 and Hilmar Drain @ Central Ave). The Coalition compiled a targeted grower list of members who farm property with the potential to drain to the creek and who apply or have applied constituents of concern. In the winter of 2012, letters outlining the management plan process and responsibilities of Coalition members (including scheduling an on-site visit with a Coalition representative) were mailed to growers in the Black Rascal Creek @ Yosemite Rd (1), Deadman Creek @ Gurr Rd (2), Deadman Creek @ Hwy 59 (8) and Hilmar Drain @ Central Ave (3) subwatersheds. The Coalition is scheduling meetings with targeted growers to assess their current operations and discuss water quality concerns. Current and recommended management practices will be reported in the 2013 MPUR.

SUMMARY OF FOCUSED OUTREACH IN PRIORITY SUBWATERSHEDS

The Coalition completed its focused outreach strategy in the first and second priority subwatersheds, which includes recommending applicable management practices to improve water quality and recording newly implemented practices.

The Coalition recommended growers implement management practices designed to address Pest Management / Dormant Spray Management (blue shades; accounted for 4,436 acres or 49% of all recommended acreage), Irrigation Water Management (green shades; accounted for 602 acres or 7% of all recommended acreage) and Irrigation Water Management / Storm Drainage / Erosion & Sediment Management (red/orange shades; accounted for 3,848 acres or 26% of all recommended acreage Figure 5). Several practices are designed to address multiple aspects of agricultural operations (i.e. filter strips aid in irrigation tailwater management and reducing erosion).

Pest Management / Dormant Spray Management practices were the most common practices implemented in the first and second priority subwatershed and accounted for 3,536 acres (39% of acreage with newly implemented practices; Figure 6, blue shades). Irrigation Water Management practices were implemented on 2,861 acres. These practices also indirectly affect storm drainage and erosion and sediment management (e.g. use of PAM to increase infiltration rates also reduces or eliminates irrigation tailwater; Figure 6, green shades). Practices designed to address Irrigation Water

Management / Storm Drainage / Erosion & Sediment Management were implemented to 2,516 acres (28% of acreage with newly implemented practices; Figure 6, red/orange shades).

During follow up contacts, particularly in the second priority subwatersheds, Coalition representatives noted the most common reason growers were unable to implement recirculation/tailwater return systems and drainage basins/sediment ponds (two of the more expensive recommended management practices) was due to the lack of resources. In an effort to assist growers in securing financial resources, the Coalition will continue to provide members with additional information regarding funding opportunities for management practice implementation (Agricultural Water Enhancement Program (AWEP), Environmental Incentives Program (EQIP), and Prop 84 money) and will continue to encourage growers to take advantage of such opportunities. In addition, growers that indicated on their follow up surveys that they were interested in additional information about funding (2011 MPUR, page 69 and Table 18, Question 19 and amendment to the 2011 MPUR, page 2 and Table 1, Question 23) will be contacted directly by a Coalition representative to assist in their individual operation's needs. More information regarding financial resources for management practice implementation is contained in the Coalition Wide Evaluation section.

Figure 5. First and second priority subwatershed percentage of acreage associated with each recommended management practice.

Pest Management / Dormant Spray Management practices (blue shades); Irrigation Water Management practices (green shades) Irrigation Water Management / Storm Drainage / Erosion & Sediment Management practices (red/orange shades) are included. Figure does not include the acreages associated with "Other" which reflect a management practices not listed in the follow up survey; refer to each site subwatershed's analysis of implemented practices in the sections below.

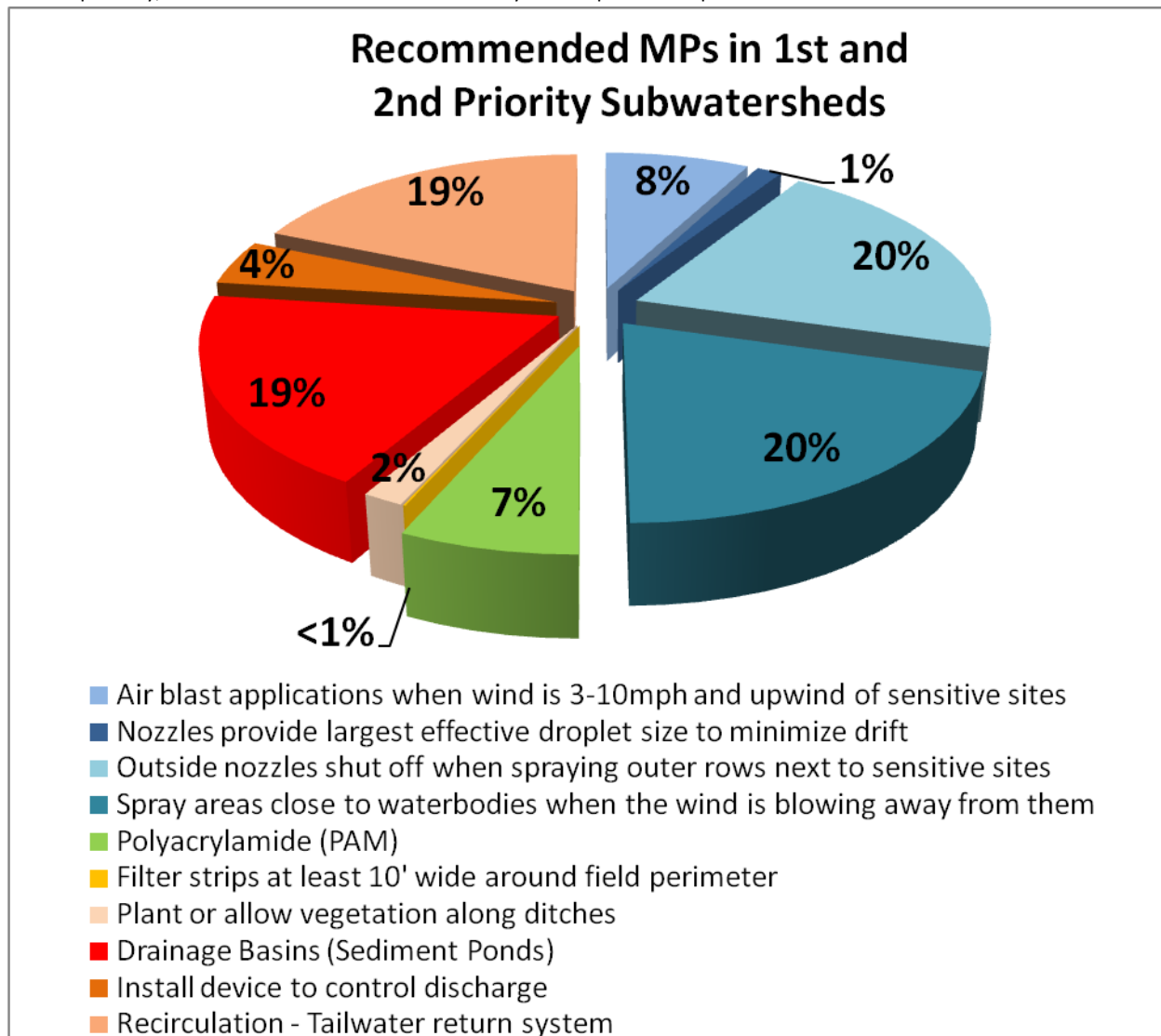
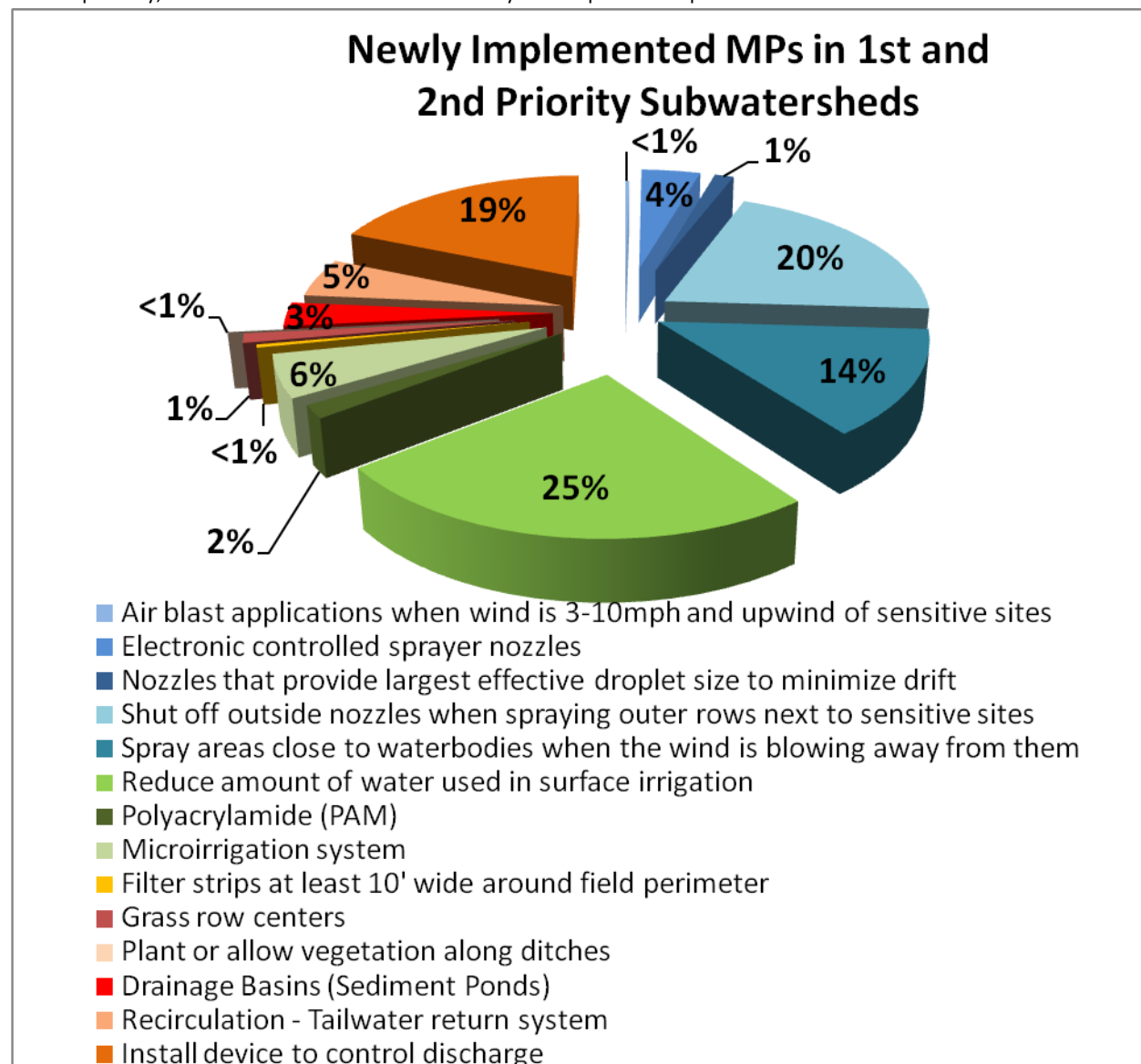


Figure 6. First and second priority subwatershed percentage of acreage associated with each newly implemented management practice.

Pest Management / Dormant Spray Management practices (blue shades); Irrigation Water Management practices (green shades) Irrigation Water Management / Storm Drainage / Erosion & Sediment Management practices (red/orange shades) are included. Figure does not include the acreages associated with "Other" which reflect a management practices not listed in the follow up survey; refer to each site subwatershed's analysis of implemented practices in the sections below.



FIRST PRIORITY SUBWATERSHEDS SUMMARY OF MANAGEMENT PRACTICES (2008-2010)

Focused outreach to document current management practices and track implementation of additional management practices in first priority subwatersheds began in 2009 and continued through 2011. The first priority subwatersheds are Dry Creek @ Wellsford Rd, Duck Slough @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd. The Coalition completed initial and follow up contacts with 100% of targeted growers in the first priority subwatersheds (Table 17).

All targeted growers completed surveys documenting current and recommended management practices in Dry Creek (25), Duck Slough (24), and Prairie Flower Drain (11) subwatersheds (Table 17). The management practice surveys were divided into checklists for various management subjects, including Irrigation Water Management, Storm Drainage, Erosion and Sediment Management, Pest Management and Dormant Spray Management. Based on survey results, the Coalition reported a final analysis of current and recommended practices in the 2011 MPUR (pages 50–68).

Follow up contacts were completed with 100% of targeted growers in the first priority subwatersheds in Dry Creek (23), Duck Slough (22) and Prairie Flower Drain (10) subwatersheds (Table 17). Contacts were conducted via three methods: follow up group meetings, mailings, and emails. As a part of each contact, growers completed follow up surveys to record newly implemented management practices (2011 MPUR, page 69 and Table 18). The Coalition reported a full evaluation of newly implemented management practices for the Prairie Flower Drain subwatersheds in the 2011 MPUR (pages 74-80). Follow up contacts were not complete in 2010 for Dry Creek @ Wellsford Rd and Duck Slough @ Hwy 99 subwatersheds due to a new members being initially contacted in 2010 (Dry Creek @ Wellsford) and delayed responses from two members in Duck Slough @ Hwy 99. In 2011, additional follow ups occurred in Dry Creek @ Wellsford (1) and Duck Slough @ Hwy 99 (2).

Table 17. Tally of growers contacted for follow up in the first set of high priority subwatersheds (2008 -2010) including number of growers and reasons for not needing follow up.

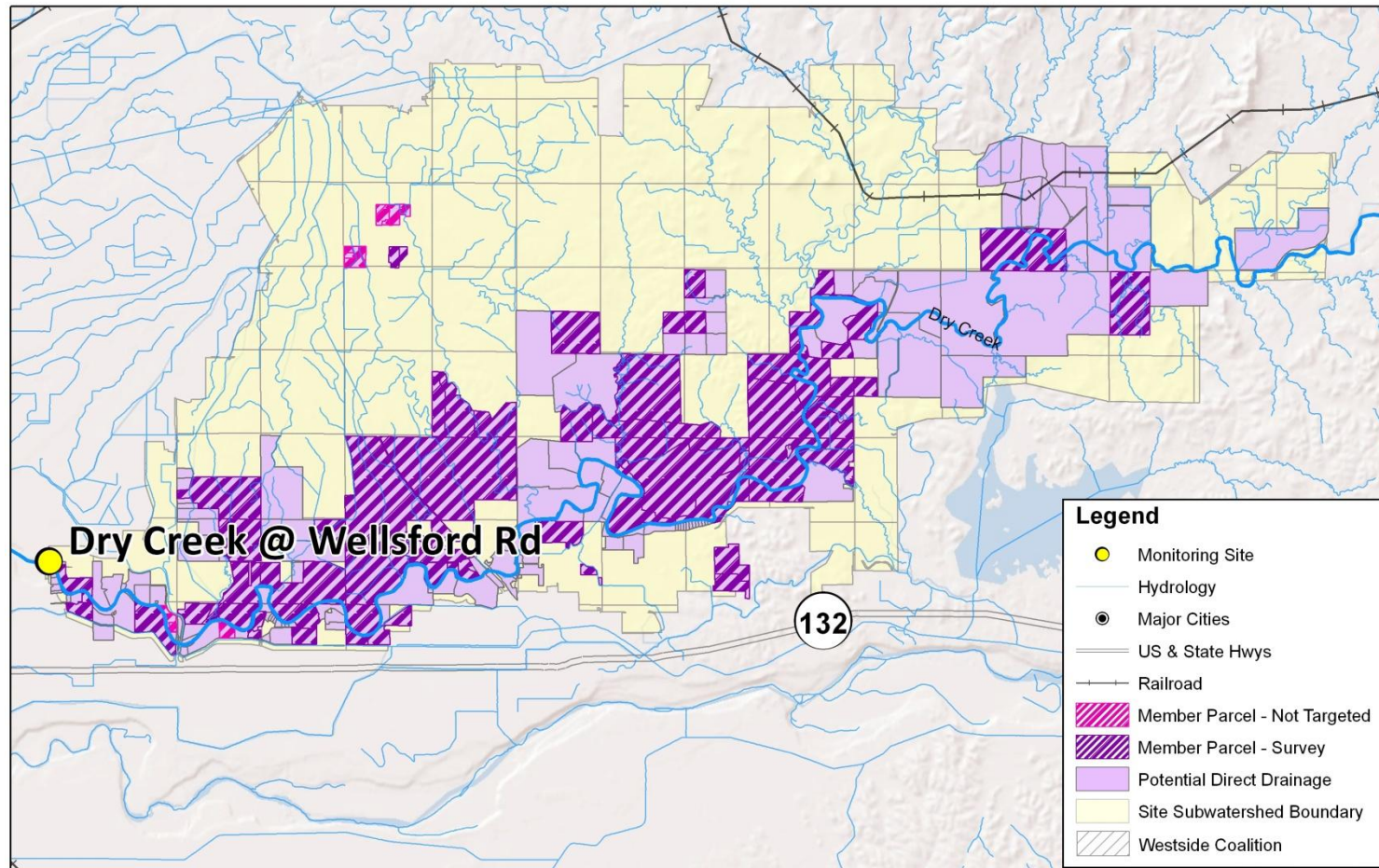
	DRY CREEK @ WELLSFORD RD	DUCK SLOUGH @ HWY 99	PRAIRIE FLOWER DRAIN @ CROWS LANDING RD
Completed Individual Survey	25	24	11
Follow Up Not Required	2	2	1
Dropped Due to Lack of Response	0	0	0
Completed Follow Up Contact	23	22	10
PERCENT COMPLETE	100%	100%	100%

Dry Creek @ Wellsford Rd

Between 2009 and 2010, the Coalition contacted 25 targeted growers representing 6,392 acres within the Dry Creek @ Wellsford subwatershed (Figure 7). This includes a single grower who had recently joined the Coalition and was added to the targeted grower list in 2010 although the Coalition completed initial contacts with all other growers. A summary of currently implemented and recommended management practices for the Dry Creek @ Wellsford Rd subwatershed can be found in the 2011 MPUR (pages 57-60).

Twenty-three growers participated in follow up contacts. Two of the 25 targeted growers who participated in initial contacts no longer claimed their parcel(s) and no follow up contacts were conducted with these growers (Table 17). A preliminary analysis of follow up contacts with 22 growers can be located in the 2011 MPUR (pages 71-73). However, the single grower that was initially contacted in 2010 was contacted in 2011 to determine if new management practices were implemented in 2010 and/or 2011.

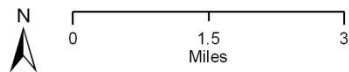
Figure 7. Dry Creek @ Wellsford member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date, 20090101, California Spatial Information Library
 Parcel Layer - Stanislaus County, 2010, Merced: 2011, Madera: 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 03/15/11

ESJWQC



Dry Creek @ Wellsford Rd 1st Priority Subwatershed Parcels

Summary of Implemented Management Practices (2009-2011)

Table 18 includes acreage totals for recommended management practices compared to newly implemented management practices from 2009, 2010 and 2011 for the Dry Creek @ Wellsford Rd subwatershed. Figure 8 includes each newly implemented management practice as a percentage of the overall acreage. All recommended practices were for parcels with no irrigation drainage; implemented practices occurred on land with and without drainage (Table 18). Overall, newly implemented management practices include shutting off outside nozzles when spraying outer rows next to sensitive sites, constructing drainage basins/sediment ponds, maintaining filter strips at least 10 feet wide around field perimeters, allowing grass to grow in the centers of orchard rows, using recirculation/tailwater return systems, and using less water during surface irrigation for operations with no irrigation drainage (Table 18, Figure 8). In addition, some growers indicated they implemented other management practices that were not specified by the Coalition's survey. These practices account for 2,586 acres with no irrigation drainage within the Dry Creek subwatershed (Table 18).

All recommended practices in the Dry Creek @ Wellsford Rd subwatershed were either implemented or are no longer applicable for a grower's operation. Three growers representing 524 acres received the recommendation to shut off outside nozzles when spraying outer rows next to sensitive sites, and all three growers implemented this additional practice (Table 18). One member representing 45 acres of orchards indicated in the follow up contact that the drainage ditches around the fields were removed and therefore the management practice to plant or allow vegetation to grow along the ditches is no longer applicable. The same grower informed Coalition representatives during follow up contact that he continues to maintain vegetation buffer strips around the perimeter of fields.

In addition to recommended management practices, several other members indicated that they implemented new management practices between 2009 and 2011 without any specific recommendations from the Coalition (Table 18). One grower, farming 107 acres, now allows grass to grow in the center of his orchard rows as a result of discussions with Coalition representatives. Two growers, accounting for 443 acres, installed recirculation/tailwater return systems on their properties. A single grower operating 121 acres constructed a drainage basin/sediment pond. Another grower farming 28 acres installed filter strips at least 10 feet wide around their field perimeter, and one grower representing 162 acres reduced the amount of water used during surface irrigation.

Question 17 of the follow up survey allows growers the opportunity to record additional implemented management practices that were not specifically recommended by the Coalition (2011 MPUR, page 69 and Table 18). Five growers representing 1,201 acres of no irrigation drainage specified that they implemented new management practices between 2009 and 2011. One of these growers, representing 121 acres, increased the size of berms between his fields and Dry Creek to better manage storm runoff. The other four growers did not specify the type of management practice implemented. In addition, one grower farming 2,450 acres with irrigation drainage also indicated they implemented new management practices not specifically discussed with the Coalition during 2009 through 2011 (Table 18). All five of these growers operate orchards, predominantly walnuts and almonds.

Table 18. Comparison of recommended MPs and implemented MPs in Dry Creek @ Wellsford Rd subwatershed.

MANAGEMENT PRACTICE (SEPARATED BY NO DRAINAGE VS DRAINAGE)	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES ⁴
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Shut off outside nozzles when spraying outer rows next to sensitive sites	3	524	3	524	100%
Vegetation is planted along or allowed to grow in ditches	1	45	0	0	0%
Drainage Basins (Sediment Ponds) ¹	0	0	1 ²	121 ²	NA
Filter strips at least 10' wide around field perimeter	0	0	1 ²	28 ²	NA
Grass row centers	0	0	1 ²	107 ²	NA
Recirculation - Tailwater return system ¹	0	0	2 ²	443 ²	NA
Reduce amount of water used in surface irrigation	0	0	1 ²	162 ²	NA
Other (Not specified) ³	NA	NA	5 ²	1,201 ²	NA
Yes, irrigation drainage from property					
Other (Not specified) ³	NA	NA	1	2,450	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					569
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					5,036
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					885%

¹ Practices apply to storm drainage

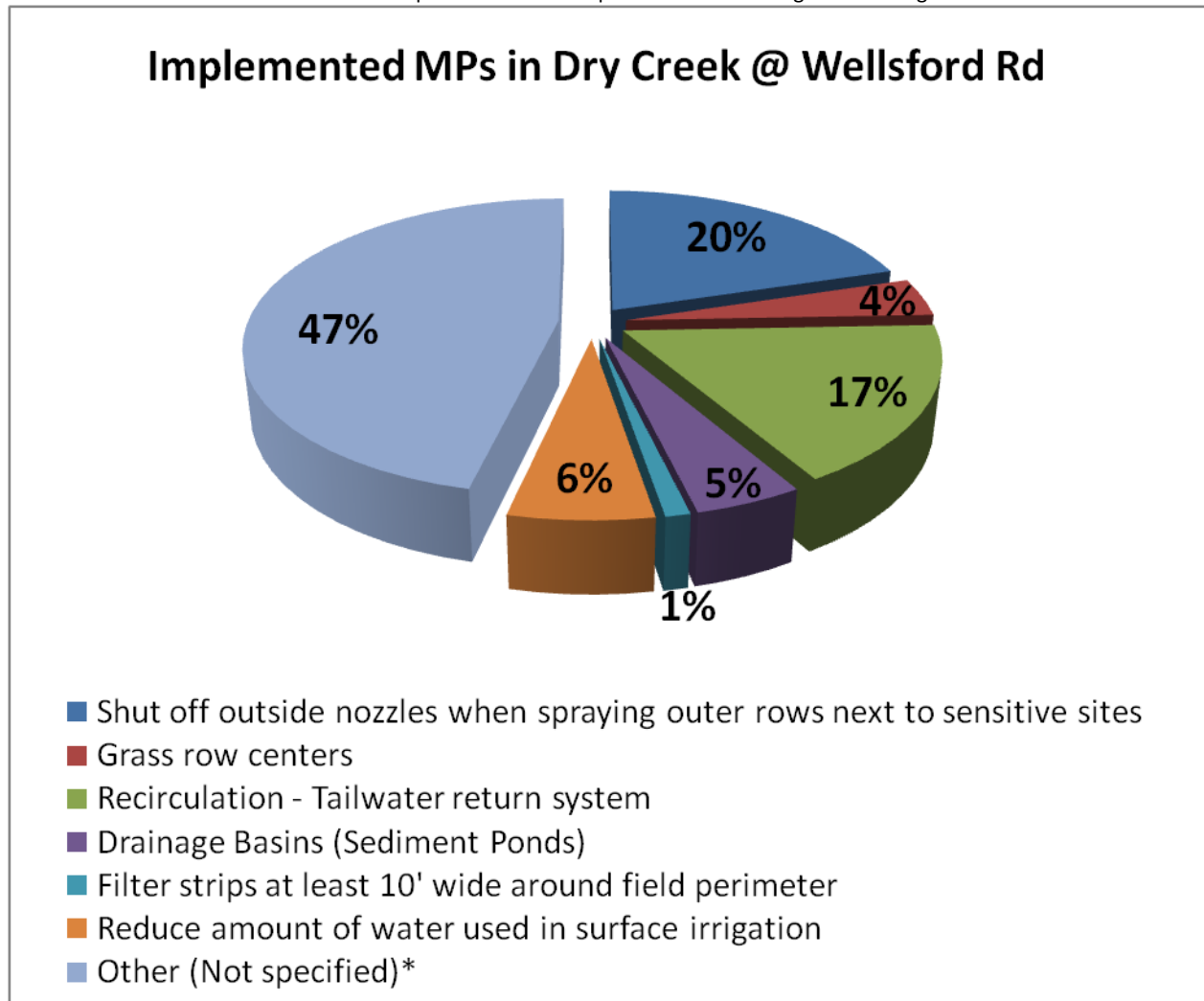
² Management practice not specifically recommended by Coalition representative for grower's operation

³ If growers implemented management practices other than those asked about during Coalition follow-up, they were instructed to indicate so and provide a summary/explanation.

⁴ Compared to the acreage associated with recommended practices. If there were no recommended practices but a grower implemented the new practice, this is noted with an NA for Not Applicable.

Figure 8. Percentage of acreage represented by newly implemented (2009/2010) management practices (MPs) for Dry Creek @ Wellsford.

All members that were recommended to implement additional practices have no irrigation drainage.



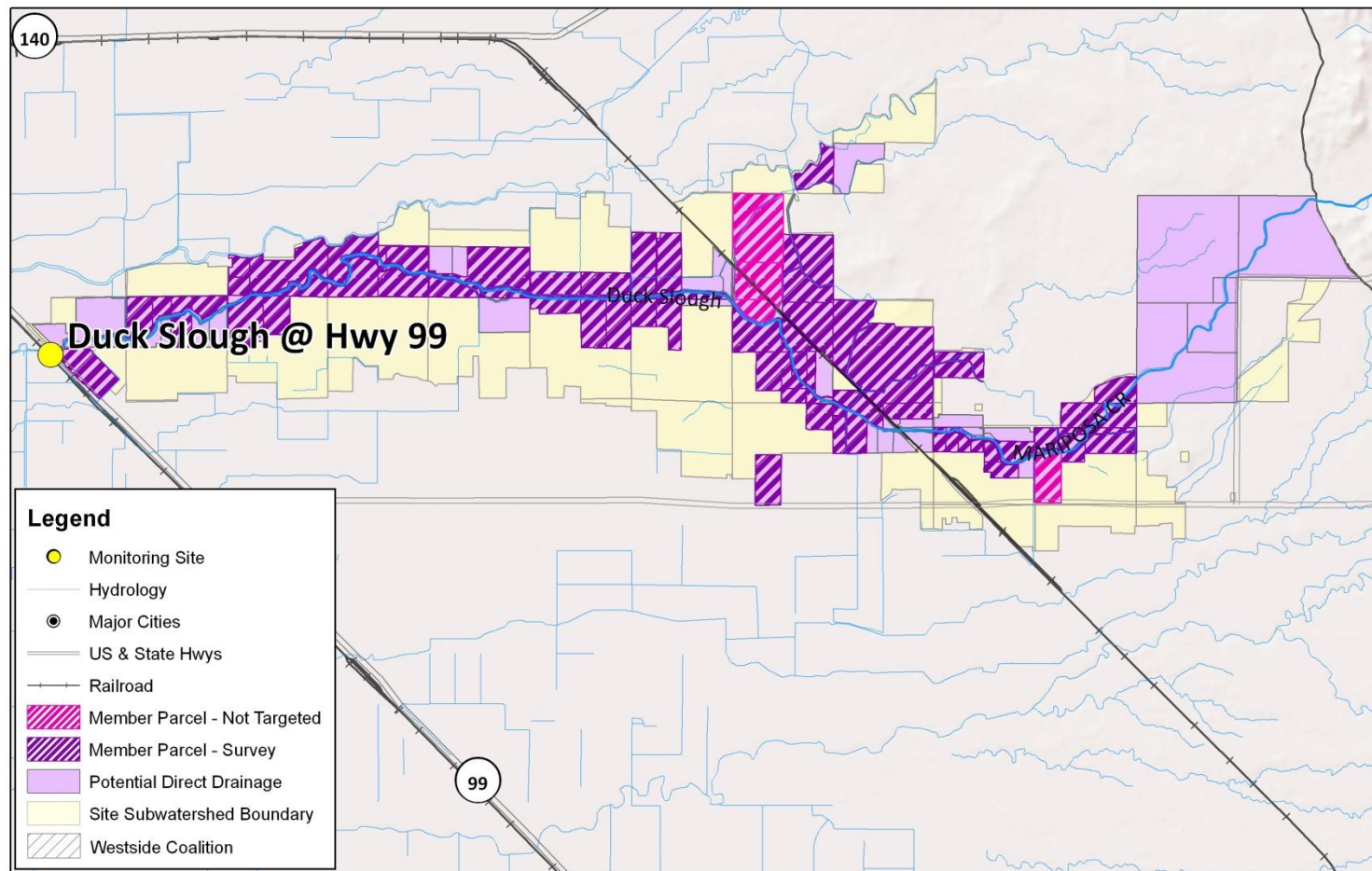
*Other (Not specified) – Refers to implemented MPs other than those specifically asked about during Coalition follow-up.

Duck Slough @ Hwy 99

The Coalition contacted 24 targeted members within the Duck Slough @ Hwy 99 subwatershed between 2009 and 2011 (Figure 9). The 24 members farm approximately 4,016 acres within the Duck Slough subwatershed (Table 9). Current and recommended management practices were documented in the 2011 MPUR (pages 61-65).

Twenty-two of the 24 members were identified for follow up contacts. One targeted grower who participated in initial contacts no longer claimed their parcel(s), and another targeted grower no longer irrigates their parcel(s); therefore, no follow up contacts were conducted for these two members (Table 19). Prior to the 2011 MPUR, two targeted growers were unresponsive to the Coalitions repeated attempts to conduct follow ups; therefore, the Coalition initiated the process of dropping these growers from ESJWQC membership. These two growers have since elected to remain in the Coalition and completed their follow up surveys.

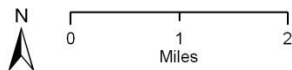
Figure 9. Duck Slough @ Hwy 99 member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date, 20090101, California Spatial Information Library
 Parcel Layer - Stanislaus County: 2010, Merced: 2011, Madera: 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 02/15/11

ESJWQC



Duck Slough @ Hwy 99 1st Priority Subwatershed Parcels

Summary of Implemented Management Practices (2010/2011)

Table 19 provides a comparison of recommended management practices and newly implemented management practices in 2010 and 2011 in the Duck Slough @ Hwy 99 subwatershed. Overall, new management practices were implemented across 3,252 acres which is 96% of the acreage for which practices were recommended (Table 19) and 81% of the targeted member acreage (4016 targeted acres, Table 9).

Newly implemented management practices associated with fields with no irrigation drainage include shutting off outside nozzles when spraying outer rows next to sensitive sites and installing devices to control storm water runoff (Table 19, Figure 10). For fields with irrigation drainage, newly implemented management practices included shutting off outside nozzles when spraying outer rows next to sensitive sites, installing devices to control discharge, installing microirrigation systems, and using less water during surface irrigation (Table 19, Figure 11). Growers accounting for 451 acres with irrigation drainage indicated that they implemented other management practices that were not specified in the Coalition's survey (Table 19, Figure 11).

Parcels with No Irrigation Drainage

The Coalition made recommendations to three growers farming a total of 914 acres with no irrigation drainage. Two of the growers received recommendations to shut off outside nozzles when spraying outer rows next to sensitive sites; one grower representing 210 acres implemented the practice whereas the other grower accounting for 662 acres plans to implement the practice in the future (Table 19). The same grower farming the 662 acres received a recommendation to only make air blast applications when wind is between three to 10 miles per hour (mph) and upwind of a sensitive site; however, this particular management practice was not asked about during follow up. The grower indicated that he was able to install a device to control the timing of storm water runoff from the 662 acre property (Table 19). The third grower was initially unresponsive to attempts by Coalition representatives to schedule a follow up phone interview and returned their survey in 2011 after the ESJWQC threatened to terminate their membership for being unresponsive to management practice information requests. The grower was told to complete a recirculation/tailwater return system, install a device to control discharge, and construct a drainage basin/sediment pond on his 42 acre property to aid in storm water management (no irrigation drainage; Table 19). The grower removed his orchards and did not irrigate in 2011 (when the follow up was completed). The grower anticipates replanting the orchard in two to three years, at which time he will consider implementing applicable management practices.

Parcels with Irrigation Drainage

The Coalition recommended management practices to five growers associated with parcels with irrigation runoff.

Two growers farming 415 acres indicated that they now shut off outside nozzles when spraying outer rows per the Coalition's recommendation (Table 19). In addition, a third grower also indicated in their follow up survey that they shut off outside nozzles when spraying outer rows next to sensitive sites; this

management practices was not recommended at the time of initial contact (Table 21). Between the three members, 436 acres are associated with shutting off outside nozzles as a new management practices (Table 21). This third grower received a recommendation to allow vegetation to grow along drainage ditches near their 21 acre property. Their survey response indicated that they did not implement this practice. Instead, the grower began to shut off outside nozzles when spraying outer rows next to sensitive sites and installed a device to control the timing of discharge, neither of which was specifically recommended by the Coalition (Table 19).

A single grower representing 596 acres with irrigation drainage received a recommendation to spray areas close to waterbodies only when the wind is blowing away from them (Table 19). The practice was not specifically asked about during follow up meetings/interviews. However, the grower did indicate they have shut off outside nozzles when spraying outer rows next to sensitive sites and they allowed grass to grow in orchard row centers and along drainage ditches since before 2005. The grower also laser leveled fields in the past and employs a recirculation/tailwater return system as well as utilizing a drainage basin/sediment pond.

Eight growers with irrigation drainage implemented new management practices during 2010 and 2011 without specific recommendations from the Coalition (Table 19). Three of the eight growers (associated with 764 acres) reduced the amount of water used in surface irrigation. One grower installed microirrigation to his 279-acre property. A grower farming 195 acres did not apply pesticides during 2010 and 2011 (except Round-Up for weeds). Two growers representing 465 acres installed devices to control the timing of discharge. One grower responded that they did implement additional practices to their 415 acre property which were not specified on the follow up survey; they did not give additional information regarding those practices (2011 MPUR, page 69 and Table 18).

Some management practices were recommended but were not implemented within this subwatershed. One grower farming 40 acres indicated they did not install a device to control timing of discharge because they are no longer farming the parcel and have leased out the land. Two growers were unable to implement recommended practices due to a lack of resources; management practices included installing a recirculation/tailwater return system, constructing a drainage basin/sediment pond, adding a device to control timing of discharge and using PAM to reduce furrow erosion (Table 19). Growers indicating a lack of resources for structural management practices may be eligible to receive Prop 84, AWEF and/or EQIP funding. The Coalition will continue to notify growers of funding opportunities for management practice implementation and will continue to encourage growers to take advantage of such opportunities.

Table 19. Comparison of recommended MPs and implemented MPs in Duck Slough @ Highway 99 subwatershed.

Recommended and implemented practices cannot be added across practices since one parcel may have more than one practice recommended/implemented. Therefore, comparisons of overall management practice implementation are done on acreages from parcels with one or more management practice.

MANAGEMENT PRACTICE (SEPARATED BY NO DRAINAGE VS DRAINAGE)	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Drainage basins (sediment ponds)	1	42	0	0	0%
Install device to control discharge ¹	1	42	1	662 ²	1,576%
Recirculation - Tailwater return system	1	42	0	0	0%
Shut off outside nozzles when spraying outer rows next to sensitive sites	2	872	1	210	24%
Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	1	662	UA	UA	UA
Yes, irrigation drainage from property					
Drainage basins (sediment ponds)	2	142	0	0	0%
Install device to control discharge	3	269	3	486 ²	181%
Recirculation - Tailwater return system	2	142	0	0	0%
Shut off outside nozzles when spraying outer rows next to sensitive sites	2	415	3	436 ²	105%
Spray areas close to waterbodies when the wind is blowing away from them	1	596	UA	UA	UA
Use Polyacrylamide(PAM)	1	142	0	0	0%
Vegetation is planted or allowed to grow along ditches	1	21	0	0	0%
Microirrigation system	0	0	1	279 ²	NA
Reduce amount of water used in surface irrigation	0	0	3	764 ²	NA
Other (Not specified) ³	0	0	2	451 ²	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					3,387
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					3,252
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					96%

¹ Practices apply to storm drainage

² Management practice not specifically recommended by Coalition representative for grower's operation

³ If growers implemented management practices other than those asked about during Coalition follow-up, they were instructed to indicate so and provide a summary/explanation.

UA – Unanswered; Coalition did not ask about specific practice during follow up contact

NA – Not applicable; no recommendations for the management practice in the subwatershed and was not indicated as implemented by surveyed growers

Figure 10. Percentage of acreage represented by newly implemented (2009/2010/2011) management practices for Duck Slough @ Hwy 99 (parcels with no irrigation drainage).

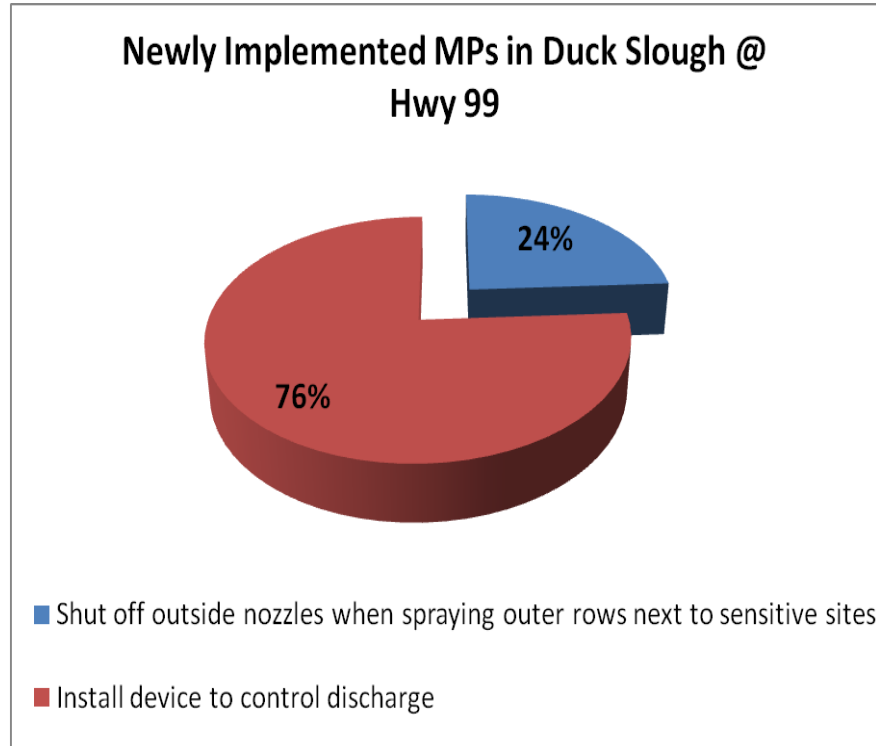
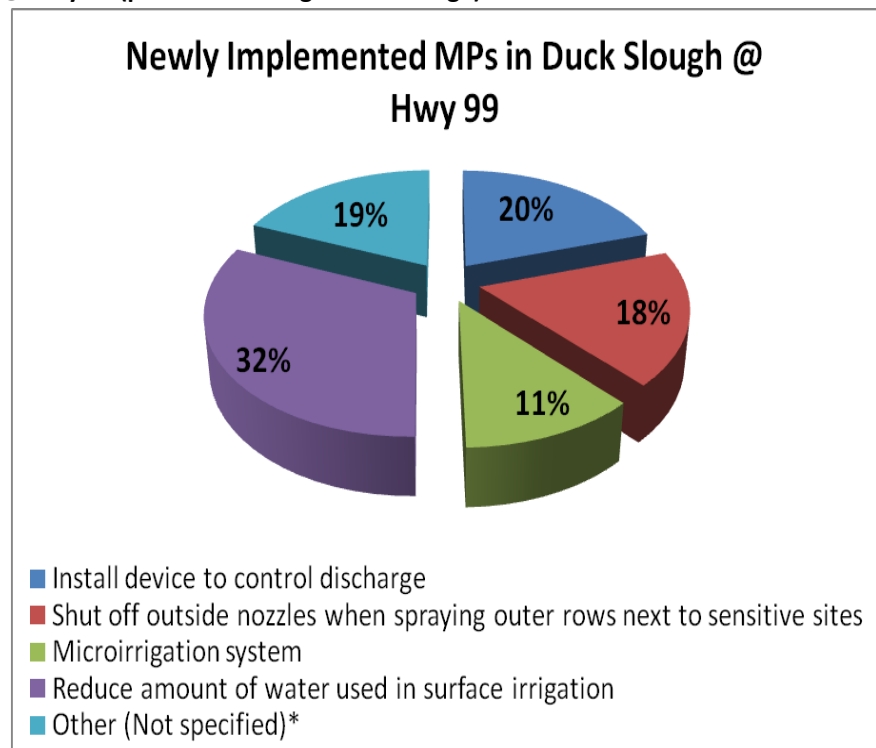


Figure 11. Percentage of acreage represented by newly implemented (2009/2010/2011) management practices for Duck Slough @ Hwy 99 (parcels with irrigation drainage).



*Other (Not specified) – Refers to implemented MPs other than those specifically asked about during Coalition follow-up.

Prairie Flower Drain @ Crows Landing Rd

The Coalition contacted 11 targeted growers within the Prairie Flower Drain @ Crows Landing Rd subwatershed with the potential to discharge directly to the drain, were currently farming, and reported pesticide use of high priority constituents (2011 MPUR, page 67 and Figure 12). The 11 members farm approximately 865 acres within the Prairie Flower Drain subwatershed which includes 3,611 irrigated acres—the majority of which is primarily dairies (Table 9). Current and recommended management practices were documented in the 2011 MPUR (pages 66-68).

Ten growers participated in follow up contacts. One targeted grower who participated in initial contacts no longer claims their parcel(s) and no follow up contact was required. The 2011 MPUR contains a full summary and evaluation of follow up contacts (pages 78-80).

SECOND PRIORITY SUBWATERSHEDS SUMMARY OF MANAGEMENT PRACTICES (2010-2012)

All initial contacts in the second priority subwatersheds were complete in the fall of 2010. Targeted growers filled out surveys documenting current and recommended management practices for Bear Creek @ Kibby Rd (14), Cottonwood Creek @ Rd 20 (25), Duck Slough @ Gurr Rd (6) and Highline Canal @ Hwy 99 (10) subwatersheds (Table 11). The management practice surveys completed by growers in the second priority subwatersheds were similar to those used for first priority subwatershed contacts. Based on survey results, the Coalition reported a preliminary analysis of current and recommended practices in the 2011 MPUR (pages 81–103).

Continued contact with growers since the submission of the 2011 MPUR provided further information regarding the growing operations of second priority members, and a few responses were updated regarding currently implemented and recommended management practices. The final results from the second priority subwatershed initial contacts are provided in the sections below.

Follow up contacts in the second priority subwatersheds were completed by the fall of 2011. Follow ups with growers occurred via three methods: group meetings, mailings, and emails. As a part of each contact, growers completed follow up surveys to record newly implemented management practices (amendment to the 2011 MPUR, page 2 and Table 1).

The second priority follow up meetings were held on April 26, 2011 (Cottonwood Creek @ Rd 20) and April 28, 2011 (Bear Creek @ Kibby Rd, Duck Slough @ Gurr Rd and Highline Canal @ Hwy 99). Similar to follow up meetings held for first priority subwatersheds, interactive hand held devices to document grower responses based on questions posed in a Power Point presentation were utilized. This allowed instantaneous responses at an individual grower level to be conducted in a grower group setting. Growers from Bear Creek (3), Cottonwood Creek (14), Duck Slough (4), and Highline Canal (3) attended the follow up meetings (Table 20).

Table 20. Tally of growers contacted for follow up in the second set of high priority subwatersheds (2010-2012).

	BEAR CREEK @ KIBBY RD	COTTONWOOD CREEK @ RD 20	DUCK SLOUGH @ GURR RD	HIGHLINE CANAL @ HWY 99
Completed Individual Survey	14	25	6	10
Follow Up Not Required	0	1	0	2
Dropped Due to Lack of Response	0	0	0	0
Completed Follow Up Contact	14	24	6	8
PERCENT COMPLETE	100%	100%	100%	100%

The remaining targeted growers in each of the subwatersheds were either sent a mailing on May 11 or an email on May 20, 2011 with a cover letter detailing the high priority Management Plan tracking strategy as well as instructions for the growers to complete their follow up survey. The mailings included a survey to be completed and returned whereas the email included an Internet address to an online survey that could be completed and submitted electronically by the grower. All growers except

for two in Cottonwood Creek returned follow up survey information either electronically or by postal mail.

The Coalition provided the Regional Board with an interim summary of newly implemented management practices for the second priority subwatersheds in the 2011 MPUR amendment (submitted on June 27, 2011). At that time, the amendment contained all of the surveys received to date and the results of the follow up contacts for Bear Creek (14), Cottonwood Creek (22), Duck Slough (6), and Highline Canal (8).

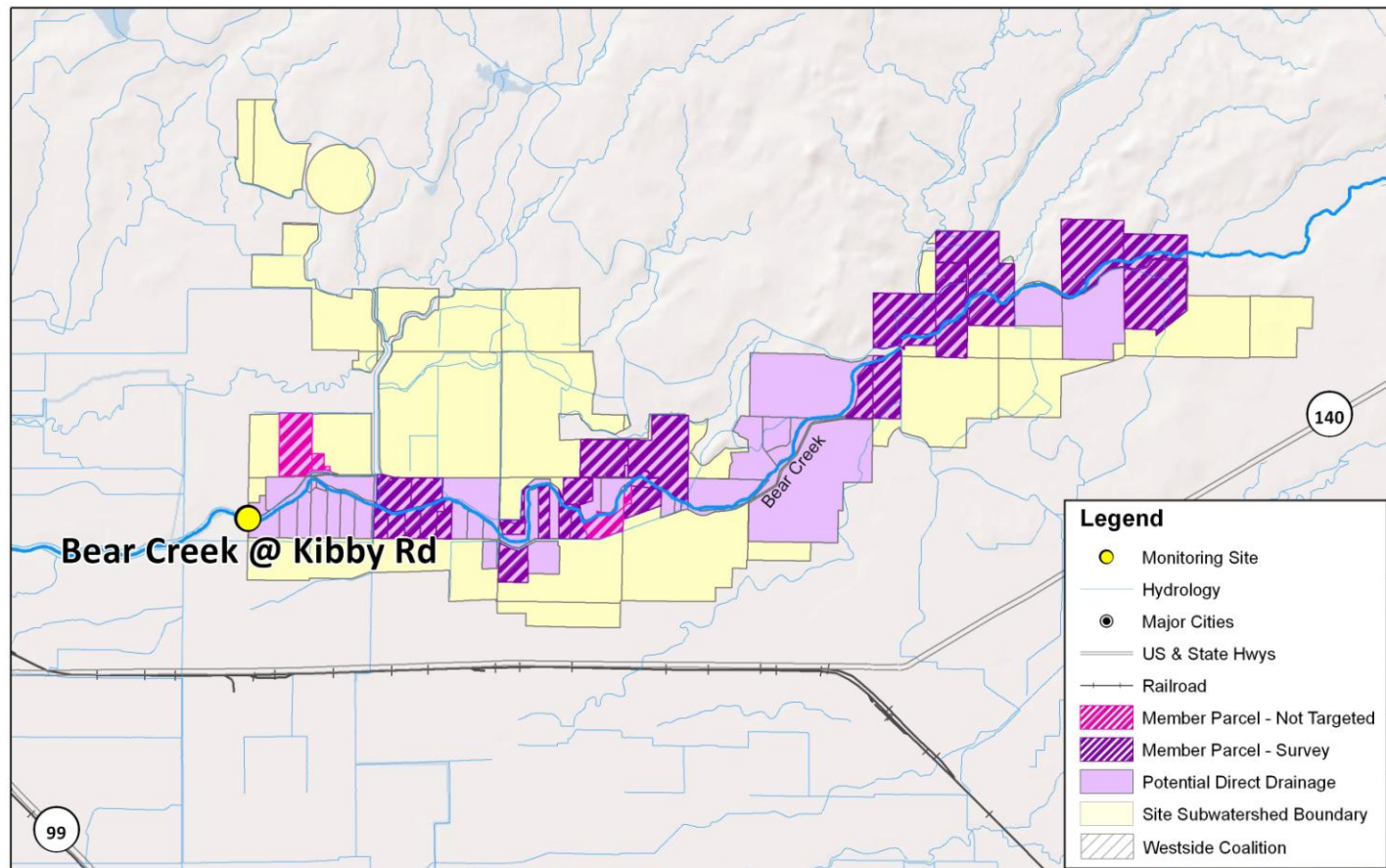
The Coalition received follow up surveys from the remaining targeted growers (two growers in Cottonwood Creek) and therefore completed 100% of follow up contacts in the second priority subwatersheds. In the 2011 MPUR amendment, it was noted that three of the targeted growers who participated in initial contacts did not require follow up contacts. Two growers either sold or no longer claimed the targeted parcels (one grower in Cottonwood Creek and one grower in Highline Canal) and one grower in Highline Canal dropped their Coalition membership (Table 20). Consequently, Table 20 includes the total number of completed follow up contacts for members in Bear Creek (14), Cottonwood Creek (24), Duck Slough (6), and Highline Canal (8) subwatersheds.

The following sections summarize currently implemented, recommended and newly implemented management practices in the second priority subwatersheds. Results vary from those submitted in the 2011 MPUR and the 2011 MPUR amendment since 100% of follow up results are now included. Some results have been updated based on continued Coalition outreach and communications with growers.

Bear Creek @ Kibby Rd

The Coalition contacted 14 targeted growers representing 31% of the total direct drainage within the Bear Creek @ Kibby Rd subwatershed (Table 11). The 14 members were determined to irrigate with the potential to drain directly to the creek, were currently farming, and reported pesticide use of high priority constituents (Figure 12). All 14 growers completed initial contact surveys and follow up surveys (Table 21).

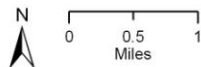
Figure 12. Bear Creek @ Kibby Rd member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date, 20090101, California Spatial Information Library
 Parcel Layer - Stanislaus County, 2010, Merced, 2011, Madera, 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 03/01/11

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Bear Creek @ Kibby Rd 2nd Priority Subwatershed Parcels

Summary of Current and Recommended Management Practices (2009/2010)

Initial survey contact results for the Bear Creek @ Kibby Rd subwatershed reported in the 2011 MPUR were updated with information obtained during follow up contact with targeted growers. Table 21 lists the management practice survey questions, associated answers, number of surveys with a specific response, the percentage of respondents with a specific response and the sum of acreage associated with a specific response for Bear Creek. The sum of acreages in Table 21 across management practices may exceed the total number of acres in the watershed since a parcel and its associated acreage may be included under multiple management practices. Table 21 can be used to evaluate number of acres for a particular practice with the overall acreage of the subwatershed, or in relation to another management practice.

Land use is varied in the Bear Creek subwatershed. Approximately half of the land use is pasture, while the remainder is split almost evenly between pasture/orchard, orchard, and field row crop (Figure 13). The majority of property in the subwatershed has irrigation drainage (93%). Consequently, Coalition representatives recommended growers in this subwatershed improve the management of their irrigation discharge by installing recirculation/tailwater return systems and constructing drainage basins/sediment ponds (Figure 14). The recommended management practices are associated with 1,014 acres (with irrigation drainage) in the Bear Creek subwatershed.

Irrigation Water Management

Of the targeted growers who filled out surveys in the Bear Creek @ Kibby Rd subwatershed, 93% of the respondents with slightly over 97% of the acreage used flood irrigation in 2009 and 2010. A single grower representing 40 acres indicated use of microirrigation systems. Sixty-four percent of respondents laser leveled their fields while 21% used recirculation/tailwater return systems. The majority of respondents (93%) irrigated based on soil moisture levels; only one grower bases irrigation schedules on irrigation district deliveries (Table 21).

Storm Water Drainage

Three respondents reported storm water drainage when the soil is saturated (21%) and seven in 100 year storms (50%). Four respondents (29%) indicated that there was no storm water drainage from their property. Only one grower indicated they pump storm water to surface waters and could control the timing. Two growers use recirculation/tailwater return systems and one grower uses a settling pond to hold storm water (Table 24).

Erosion & Sediment Management

All respondents indicated they controlled sediment erosion/runoff by some means, including utilizing vegetative filter strips, vegetated ditches, settling ponds and recirculation/tailwater return systems (Table 21). Four growers reported they either remove cattle from pastureland when water is present or have riparian vegetation and/ or fences to prevent livestock access to waterways. One grower has both fences and vegetation along waterways and one grower with 15 acres indicated livestock are permitted to drink from the creek (Table 21). The remaining growers do not have livestock.

Pest Management / Dormant Spray Management

Seventy-nine percent of respondents indicated they apply various forms of herbicides during the winter; the most commonly applied herbicide is glyphosate (71%). One respondent indicated they considered alternatives to using diazinon or chlorpyrifos during the growing season and 13 respondents indicated that the question is not applicable to their operation. Only one respondent uses dormant sprays and always applies to orchards with vegetated cover, checks the weather conditions prior to spraying, and maintains setback zones during application (Table 24).

The majority took numerous steps to manage their spray drift including adjusting spray nozzles to match the canopy profile (86%), shutting outside nozzles off when spraying the outer two rows (57%), spraying areas close to waterbodies when the wind is blowing away from them (79%), using air blast applications when wind is between three and 10 mph (43%), and (86%) using nozzles that provide the largest effective droplet size to minimize drift (Table 21). Eight respondents indicated they calibrate their nozzles prior to each application, whereas two respondents calibrate once a month, three calibrate once a year, and one respondent never calibrates their spray equipment (Table 21).

Table 21. Bear Creek @ Kibby Rd subwatershed current management practices (2010).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	9	64%	679
		Recirculation - Tailwater return system	3	21%	538
		Use drainage basins (sediment ponds) to capture and retain runoff	2	14%	52
	Irrigation System	Microirrigation	1	7%	40
		Surface	13	93%	1252
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	13	93%	1272
		Irrigation District Deliveries	1	7%	20
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	2	14%	30
		Pump/Drain into waterway & able to control timing	1	7%	20
		Pump/Drain into waterway & unable to control timing	8	57%	942
		Recirculation - Tailwater return system	2	14%	52
		Settling Pond	1	7%	20
	When do you have storm water draining from your field?	After soil is saturated-late winter	3	21%	533
		No Storm Drainage	4	29%	101
		Only in heavy (100 year) storms	7	50%	658
Section 3: Erosion & Sediment Management	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	6	43%	495
		Maintain vegetated filter strips around field perimeter at least 10' wide	11	79%	1128
		Vegetation is planted along or allowed to grow along ditches	7	50%	885
	Do you apply herbicides during winter months?	Do not apply	3	21%	130
		Glyphosate (Round-Up)	10	71%	1056
		Goal	4	29%	102
		Other	8	57%	1084
		Simazine (Princep)	1	7%	32
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	9	64%	503
		Other: Livestock drink in creek	1	7%	15
		Riparian vegetation prevents livestock access to water	1	7%	45
		Water not present when livestock is in pasture	3	21%	729
		Waterway is fenced	1	7%	45
Section 4: Pest Management	Spray management practices:	Adjust spray nozzles to match crop canopy profile	12	86%	1232

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
		Outside nozzles shut off when spraying outer rows next to sensitive sites	8	57%	584
		Spray areas close to waterbodies when the wind is blowing away from them	11	79%	746
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	6	43%	495
		Uses of nozzles that provide largest effective droplet size to minimize drift	12	86%	1232
	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	13	93%	1252
		Yes	1	7%	40
	How often is spray equipment calibrated?	Never	1	7%	486
		Once per month	2	14%	205
		Once per year	3	21%	50
		Prior to each application	8	57%	551
Section 5: Dormant Spray Management	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	1	7%	40
		Maintain setback zones	1	7%	40
	Do you apply when soil moisture is at field capacity?	No	1	7%	40
	Have you been informed of DPR's Dormant Spray Regulations?	Yes	1	7%	40
	How many acres are sprayed with dormant pesticides?	40 Acres	1	7%	40
		No Dormant Sprays	13	93%	1252
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Vegetated Cover w/Sprayed Berms	1	7%	40
		Vegetative cover	1	7%	40

Figure 13. Bear Creek @ Kibby Rd crop acreage information from member surveys (2010).

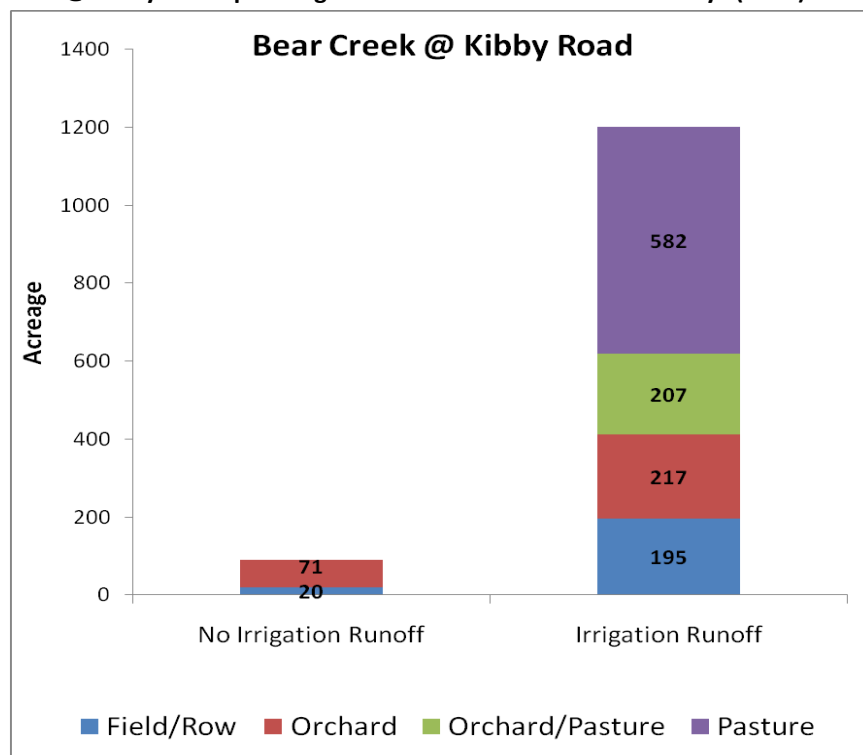
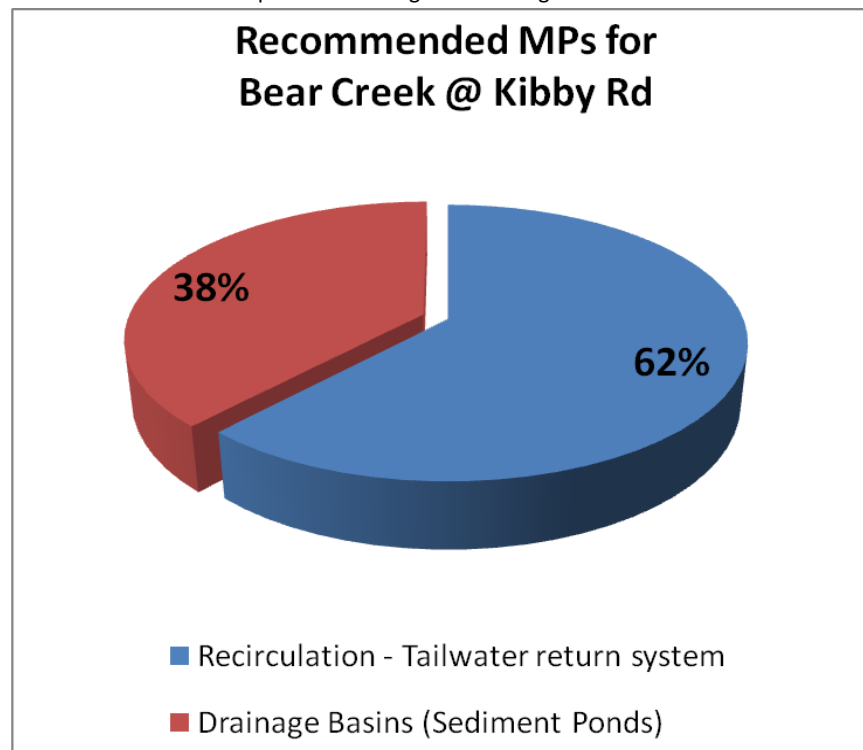


Figure 14. Percent of acreage represented by recommended management practices for Bear Creek @ Kibby Rd.
Recommended practices are associated with parcels with irrigation drainage.



Summary of Implemented Management Practices (2010/2011)

Table 22 presents a comparison of the Bear Creek @ Kibby Rd subwatershed 2010 recommended management practices and newly implemented management practices. There were two newly implemented management practices within Bear Creek: microirrigation system installation and reducing the amount of water used during surface irrigation. These practices were implemented over 611 acres with irrigation drainage; 66% of that acreage received new microirrigation systems while 34% is now flood irrigated using less water (Figure 15). These management practices were not specifically recommended by Coalition representatives to growers in the subwatershed (Table 22).

Table 22. Comparison of recommended MPs and implemented MPs in Bear Creek @ Kibby Rd subwatershed.

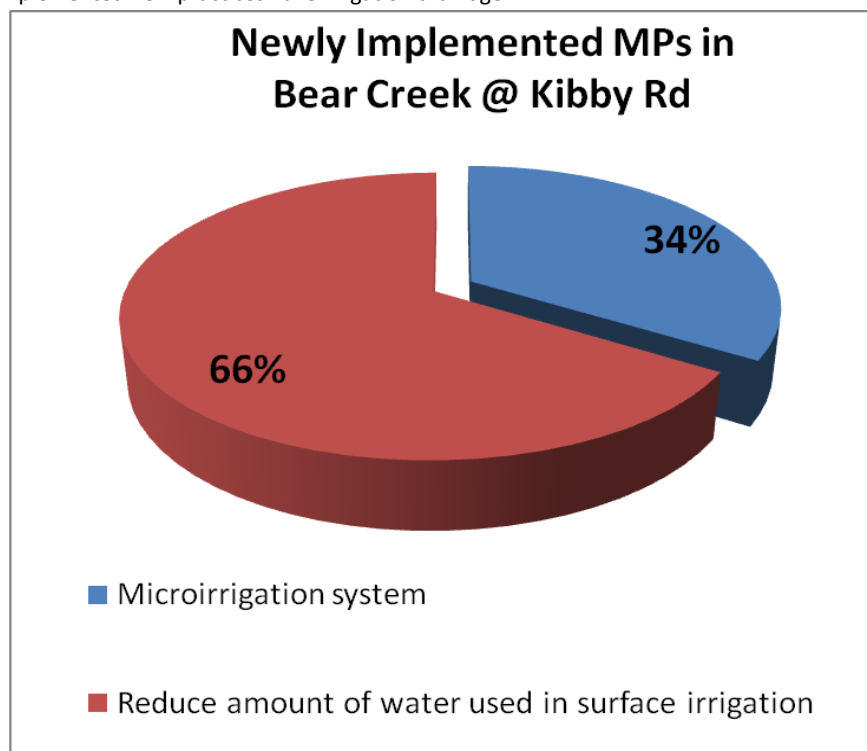
MANAGEMENT PRACTICE (SEPARATED BY NO DRAINAGE VS DRAINAGE)	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Recirculation - Tailwater return system	1	10	0	0	0%
Yes, irrigation drainage from property					
Drainage Basins (Sediment Ponds)	3	387	0	0	0%
Recirculation - Tailwater return system	7	617	0	0	0%
Microirrigation system	0	0	1	207 ¹	NA
Reduce amount of water used in surface irrigation	0	0	3	404 ¹	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					1,014
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					611
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					60%

¹Management practice not specifically recommended by Coalition representative for grower's operation.

NA – Not applicable; no recommendations for the management practice in the subwatershed.

Figure 15. Percentage of acreage represented by newly implemented management practices for Bear Creek @ Kibby Rd.

All members that implemented new practices have irrigation drainage.



The management practices recommended by Coalition representatives to 1,014 acres were not implemented in 2010 for various reasons. One grower, farming 45 acres with irrigation drainage, indicated that he plans to install a recirculation/tailwater return system by the 2011 irrigation season (Table 22). At the time of the follow up survey in 2010, the grower was waiting on equipment.

Another grower did not implement the recommended recirculation/tailwater return system because it is no longer applicable to his property. The grower was recommended during initial contact to install the system to 10-acres of property to better manage irrigation drainage. However, during follow up contacts, the grower informed the Coalition he leased the property to a neighbor who does not irrigate and reported no irrigation drainage (Table 22). Consequently, the management practice is not necessary at this time.

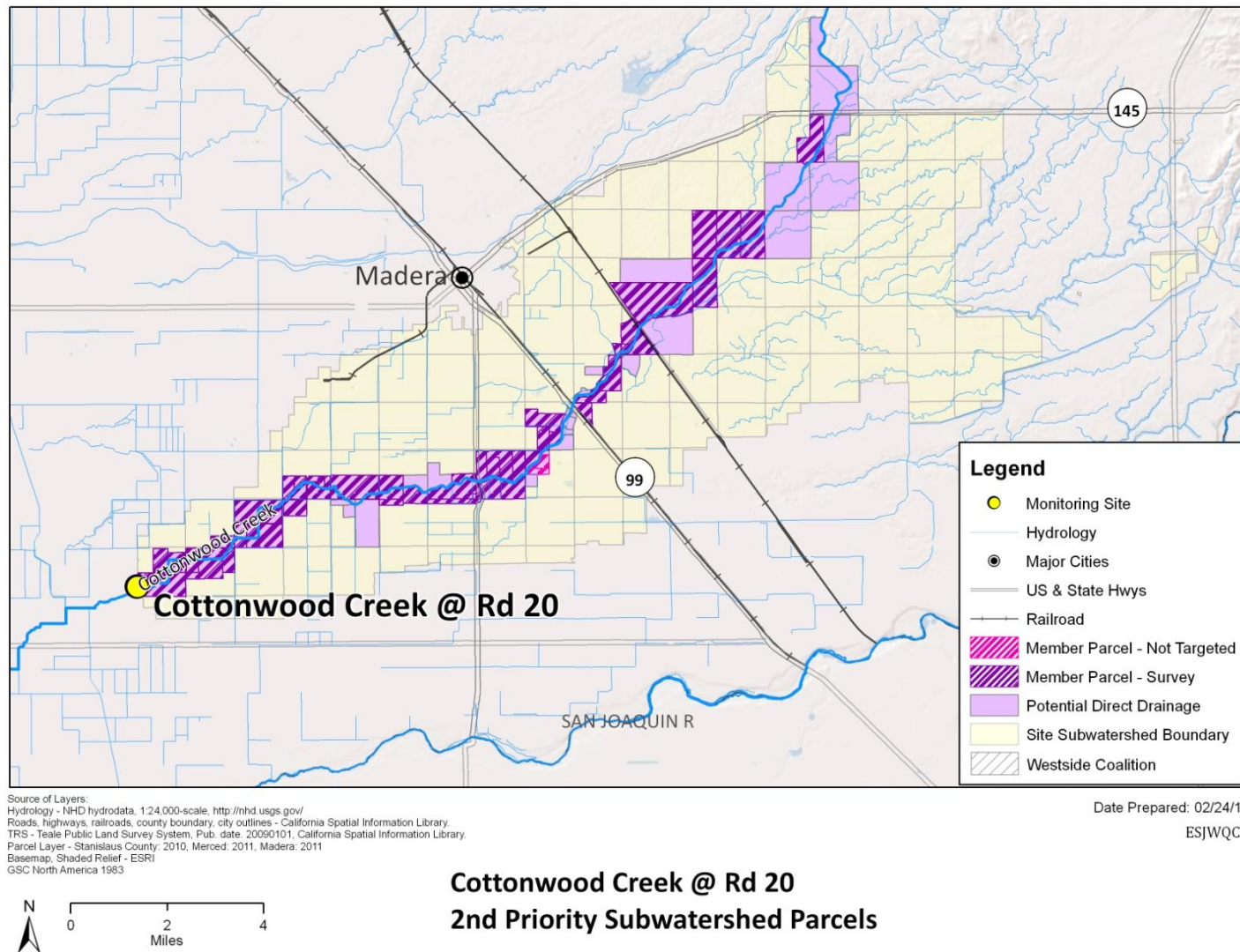
All of the remaining growers in the Bear Creek subwatershed indicated they would like to install the recirculation/tailwater return systems and/or drainage basins/sediment ponds that were recommended for their operations, but have no resources to do so (Table 22). The Coalition will continue its strategy of notifying its members about available funding opportunities and encourage them to take advantage of the application process (which is discussed in more detail under the Evaluation of Management Practice Effectiveness section).

Of the five growers who indicated they did not have the resources to implement structural management practices, two growers implemented other management practices not specifically recommended. Despite the lack of resources, two growers unable to afford implementing the structural management practices still improved their management of irrigation tailwater by implementing other practices not specifically recommended. The two growers, associated with 207 and 165 acres, both received recommendations to install a recirculation/tailwater return system and a drainage basin/sediment pond; together, their acreage accounts for 744 of the acres with recommended practices in the Bear Creek subwatershed (372 acres associated with both a recirculation/tailwater return system and a drainage basin/sediment pond). The grower farming 207 acres installed a microirrigation system and reduced the amount of water used during surface irrigation; the grower operating 165 acres reduced the amount of water used during surface irrigation (Table 22).

Cottonwood Creek @ Rd 20

The Coalition received completed surveys from 25 targeted growers representing 45% of the total direct drainage acreage (Table 11, Figure 16). The 25 members were surveyed for management practices currently implemented across 5,768 acres within the Cottonwood Creek subwatershed (Table 11). One grower sold their property and therefore follow up surveys were completed by 24 of the 25 initial contacts (Table 23).

Figure 16. Cottonwood Creek@ Rd 20 member parcels with direct drainage potential.



Summary of Current and Recommended Management Practices (2009/2010)

Coalition members in Cottonwood Creek primarily farm orchards and vineyards, the majority of which have no irrigation runoff (Figure 17). A large portion of the creek is bordered by large berms, which prevent discharge to the creek and less than 20% of the acreage surveyed has irrigation runoff (Figure 17). The vast majority of recommended practices address spray drift management; however, Coalition representatives also recommended storm water runoff management and prevention practices, including installation of 10 foot wide filter strips around field perimeters (Figure 18).

Irrigation Water Management

As listed in Table 23, growers were almost evenly split between those who reported utilizing microirrigation and/or sprinklers to irrigate (56%) and who reported utilizing surface (flood) irrigation (52%). However, the 52% of respondents using flood irrigation accounted for only 36% of the acreage. In addition, a single grower farming 695 acres uses surface, sprinkler, and microirrigation techniques (all irrigation systems are associated with the enrolled acreage). All respondents irrigate based on actual moisture levels and crop needs rather than on a set schedule, and the majority of growers (80%) farm laser leveled fields (Table 23).

Storm Water Drainage

The majority of respondents indicated no storm water drainage (68%) from their property. Five respondents indicated storm water drainage only in 100 year storms, and three growers reported storm water drainage when the soil is saturated. Several growers implemented management practices designed to address storm water drainage, including growers who indicated no drainage from their property (Table 23, How are you able to manage storm drainage?). Six growers pump or drain discharge into waterways and are unable to control timing, two growers are able to control timing of pumping or discharge, two growers utilize a recirculation/tailwater return system, and one grower utilizes a settling pond. Herbicides are applied by most growers, with only 8% indicating no applications (Table 23). Glyphosate and Goal are the most commonly applied herbicides.

Erosion & Sediment Management

All respondents indicated that they control erosion and sediment delivery by some means.

Pest Management

Three respondents indicated they considered alternatives to using diazinon or chlorpyrifos during the growing season while the remaining 22 respondents indicated alternative are not applicable (Table 23). Over 96% of the acreage is sprayed with equipment that is calibrated prior to each application and the majority took numerous steps to manage their spray drift. One hundred percent of the growers adjust spray nozzles to match the canopy profile and use nozzles that provide the largest effective droplet size. Ninety-two percent of the growers shut outside nozzles when spraying outer two rows and spray areas close to waterbodies when the wind is blowing away and 80% of the growers use air blast applications when wind is between three to 10 mph (Table 23).

Dormant Spray Management

The majority of respondents (92%) indicated that they do not use dormant sprays. The two respondents who do apply during the dormant season indicated vegetation covers their fields in the winter, they check weather conditions prior to application and maintain setback zone while spraying.

Table 23. Cottonwood Creek@ Rd 20 subwatershed current management practices (2010).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	20	80%	4283
		Recirculation - Tailwater return system	2	8%	510
		Use drainage basins (sediment ponds) to capture and retain runoff	1	4%	96
	Irrigation System	Microirrigation	11	44%	4126
		Sprinkler	3	12%	938
		Surface	13	52%	2096
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	25	100%	5770
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	12	48%	2167
		Pump/Drain into waterway & able to control timing	2	8%	944
		Pump/Drain into waterway & unable to control timing	6	24%	2194
		Recirculation - Tailwater return system	2	8%	510
		Settling Pond	1	4%	414
	When do you have storm water draining from your field?	After soil is saturated-late winter	3	12%	1127
		No Storm Drainage	17	68%	2467
		Only in heavy (100 year) storms	5	20%	2176
Section 3: Erosion & Sediment Management	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	21	84%	5326
		Maintain vegetated filter strips around field perimeter at least 10' wide	13	52%	2849
		Vegetation is planted along or allowed to grow along ditches	6	24%	2332
	Do you apply herbicides during winter months?	Diuron (Karmex)	1	4%	80
		Do not apply	2	8%	130
		Glyphosate (Round-Up)	19	76%	4899
		Goal	13	52%	3592
		Other	9	36%	1278
		Paraquat (Gramaxone)	9	36%	3561
		Simazine (Princep)	6	24%	773
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	23	92%	5630
		Riparian vegetation prevents livestock access to water	1	4%	80
		Waterway is fenced	1	4%	80

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 4: Pest Management	Spray management practices:	Adjust spray nozzles to match crop canopy profile	25	100%	5770
		Outside nozzles shut off when spraying outer rows next to sensitive sites	23	92%	5606
		Spray areas close to waterbodies when the wind is blowing away from them	23	92%	4663
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	20	80%	5195
		Uses of nozzles that provide largest effective droplet size to minimize drift	25	100%	5770
	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	22	88%	4831
		Yes	3	12%	939
	How often is spray equipment calibrated?	Once per month	3	12%	107
		Once per year	3	12%	149
		Prior to each application	19	76%	5514
Section 5: Dormant Spray Management	Dormant spray management practices:	Check weather conditions prior to spraying	2	8%	614
		Maintain setback zones	2	8%	614
	Do you apply when soil moisture is at field capacity?	No	2	8%	614
	Have you been informed of DPR's Dormant Spray Regulations?	Yes	2	8%	614
	How many acres are sprayed with dormant pesticides?	461 Acres	1	4%	461
		56 Acres	1	4%	153
		No Dormant Sprays	23	92%	5156
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Some vegetation	1	4%	153
		Vegetated Cover w/Sprayed Berms	1	4%	461

Figure 17. Cottonwood Creek@ Rd 20 crop acreage information from member surveys (2010).

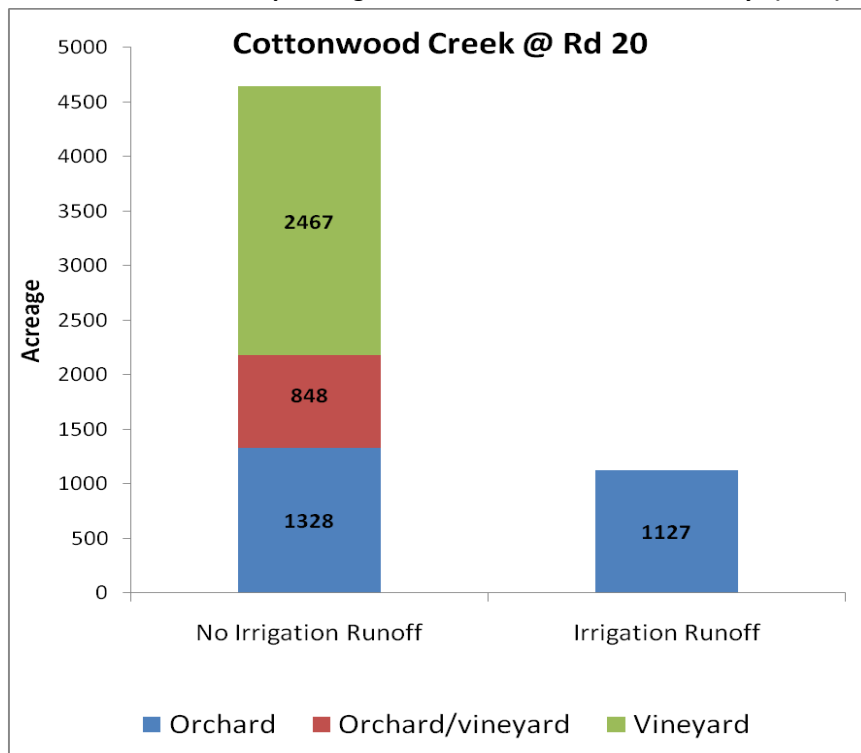
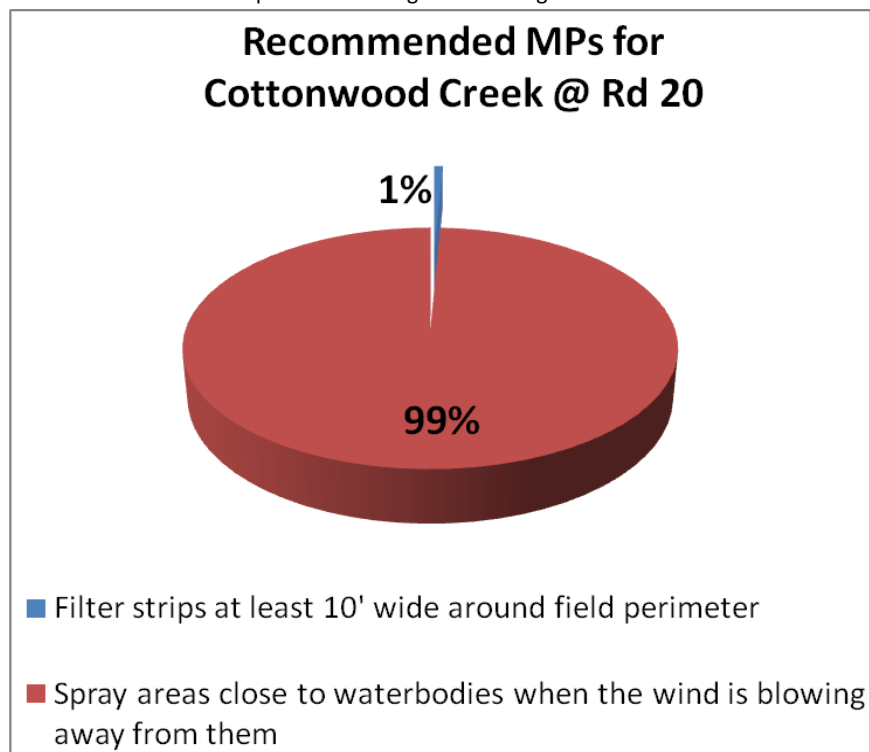


Figure 18. Percent of acreage represented by recommended management practices for Cottonwood Creek@ Rd 20.

Recommended practices are associated with parcels with irrigation drainage.



Summary of Implemented Management Practices (2010/2011)

Table 24 presents a comparison of Coalition recommended management practices and newly implemented management practices for the Cottonwood Creek @ Rd 20 subwatershed. Newly implemented management practices within Cottonwood Creek include maintaining filter strips at least 10 feet wide around field perimeters, spraying areas close to waterbodies when the wind is blowing away from them, using electronic controlled sprayer nozzles, and using less water during surface irrigation. Growers implemented all recommended practices as well as practices that were not specifically recommended for their operations, accounting for 1,917 acres without irrigation drainage within the Cottonwood Creek subwatershed (Table 24). Figure 19 provides each of the newly implemented management practices as a percentage of the overall acreage.

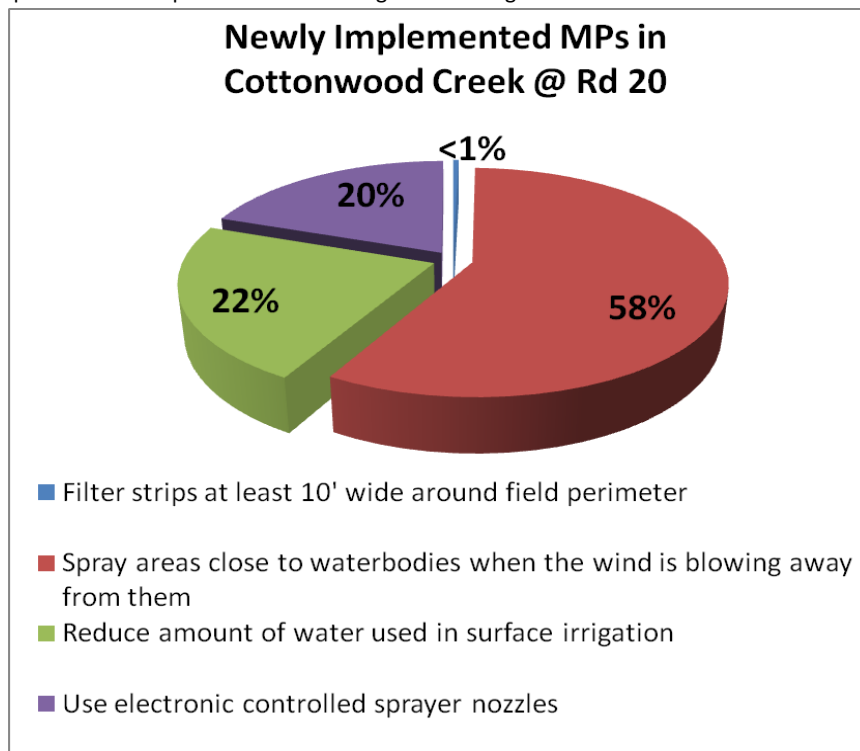
Table 24. Comparison of recommended MPs and implemented MPs in Cottonwood Creek @ Rd 20 subwatershed.

MANAGEMENT PRACTICE (SEPARATED BY NO DRAINAGE VS DRAINAGE)	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Filter strips at least 10' wide around field perimeter	1	8	1	8	100%
Spray areas close to waterbodies when the wind is blowing away from them	2	1,107	2	1,107	100%
Use electronic controlled sprayer nozzles	0	0	3	375 ¹	NA
Reduce amount of water used in surface irrigation	0	0	1	427 ¹	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					1,115
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					1,917
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					172%

¹Management practice not specifically recommended by Coalition representative for grower's operation.
NA – Not applicable; no recommendations for the management practice in the subwatershed.

Figure 19. Percentage of acreage represented by newly implemented management practices for Cottonwood Creek @ Rd 20.

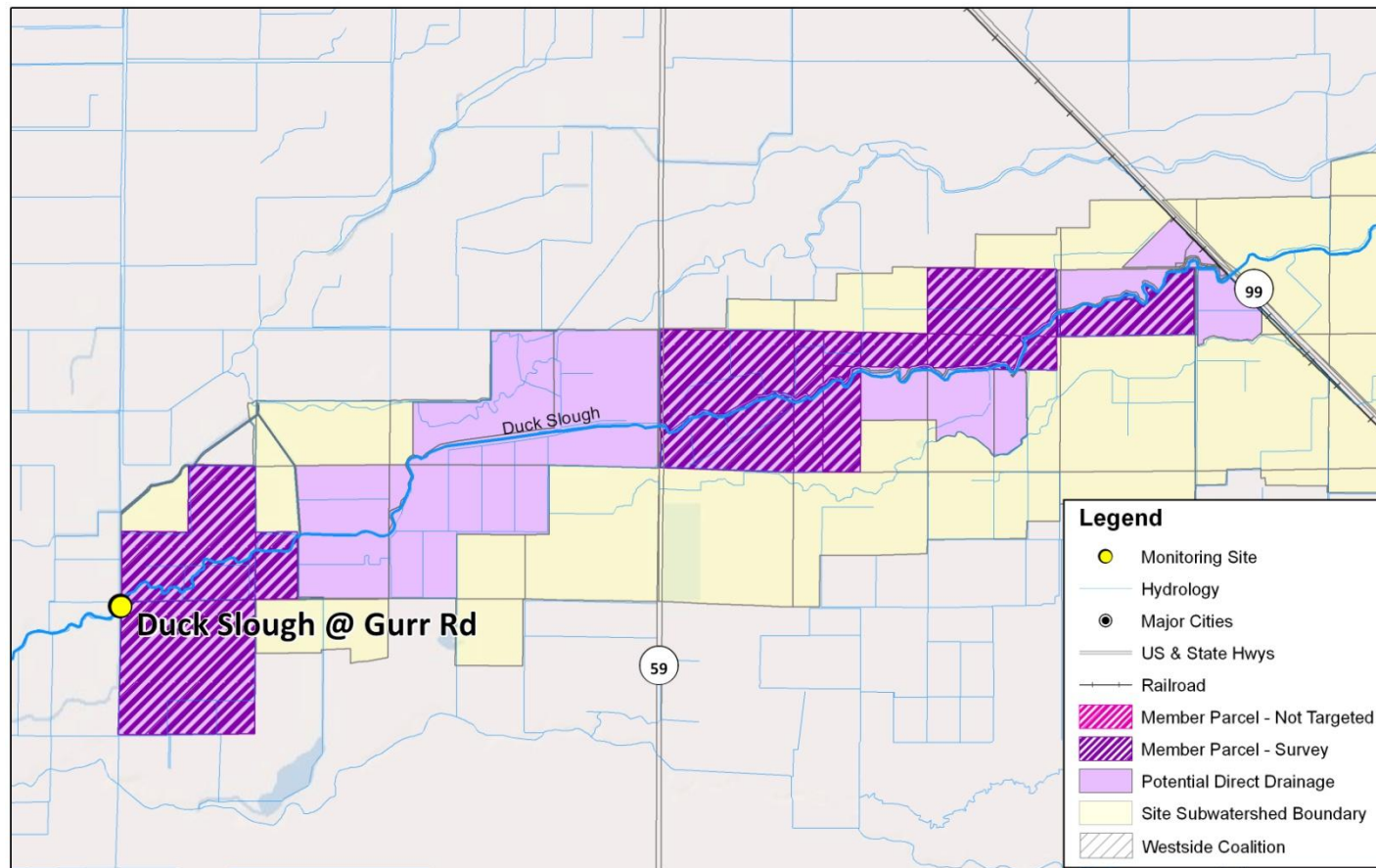
All members that implemented new practices have no irrigation drainage.



Duck Slough @ Gurr Rd

The Coalition contacted six targeted growers representing 46% of the total direct drainage area within the Duck Slough @ Gurr Rd subwatershed (Table 11). The six members could drain directly to Duck Slough (including spray drift potential), were currently farming and reported pesticide use of high priority constituents (Figure 20). All six growers completed initial contact and follow up surveys (Table 25).

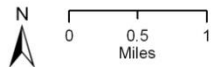
Figure 20. Duck Slough @ Gurr Rd member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date: 20090101, California Spatial Information Library
 Parcel Layer - Stanislaus County; 2010, Merced; 2011, Madera; 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 02/28/11

ESJWQC



Duck Slough @ Gurr Rd 2nd Priority Subwatershed Parcels

Summary of Current and Recommended Management Practices (2009/2010)

The Duck Slough @ Gurr Rd subwatershed is dominated by field/row crops 80% of which could return irrigation tailwater to Duck Slough (Figure 21). Coalition representatives recommended management practices to those growers. These practices include installing a recirculation/tailwater return system, constructing a drainage basin/sediment pond to reduce runoff and using PAM during irrigation to reduce furrow erosion (Figure 22). When applicable, additional recommendations (including spraying areas close to waterbodies when wind is blowing away from them) were made by the Coalition to further aid in reducing water quality impairments (Figure 22).

Irrigation Water Management

All growers surveyed in the Duck Slough watershed indicated they surface irrigate (Table 25). All growers laser level their fields, 67% use recirculation/tailwater return systems and 50% use sediment retention ponds to prevent discharges to surface waters (Table 25).

Storm Water Drainage

Thirty-three percent of respondents reported no storm water drainage and 67% drain only during 100 year storms. Half of growers representing 66% of the acreage indicated they pump storm water to surface waters and are able to control the timing; one grower pumps to surface waters but cannot control the timing. Fifty percent of the acreage in Duck Slough @ Gurr Rd has a recirculation/tailwater return system and/or settling pond installed (Table 25).

Erosion & Sediment Management

All respondents indicated they control erosion and sediment delivery by some means (Table 25).

Pest Management / Dormant Spray Management

All but one grower indicated that they apply herbicides during the winter; 50% apply paraquat and 33% apply glyphosate (Table 25). None of the targeted members apply dormant sprays. The majority of respondents (83%) calibrate prior to application of pesticides and one grower calibrates once per month. Every respondent takes numerous steps to manage their spray drift including adjusting spray nozzles to match the canopy profile (100%), spraying areas close to waterbodies when the wind is blowing away from them (83%), and using nozzles that provide the largest effective droplet size to minimize drift (100%, Table 25).

Table 25. Duck Slough @ Gurr Rd subwatershed current management practices (2010).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	6	100%	2656
		Recirculation - Tailwater return system	4	67%	1845
		Use drainage basins (sediment ponds) to capture and retain runoff	3	50%	1754
	Irrigation System	Surface	6	100%	2656
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	6	100%	2656
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	2	33%	280
		Pump/Drain into waterway & able to control timing	3	50%	1754
		Pump/Drain into waterway & unable to control timing	1	17%	91
		Recirculation - Tailwater return system	2	33%	1309
		Settling Pond	2	33%	1309
	When do you have storm water draining from your field?	No Storm Drainage	2	33%	811
		Only in heavy (100 year) storms	4	67%	1845
Section 3: Erosion & Sediment Management	Sediment management practices:	Maintain vegetated filter strips around field perimeter at least 10' wide	1	17%	189
		Vegetation is planted along or allowed to grow along ditches	5	83%	2211
	Do you apply herbicides during winter months?	Diuron (Karmex)	1	17%	484
		Do not apply	1	17%	622
		Glyphosate (Round-Up)	2	33%	536
		Other	4	67%	1845
		Paraquat (Gramaxone)	3	50%	1105
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	6	100%	2656
Section 4: Pest Management	Spray management practices:	Adjust spray nozzles to match crop canopy profile	6	100%	2656
		Outside nozzles shut off when spraying outer rows next to sensitive sites	1	17%	445
		Spray areas close to waterbodies when the wind is blowing away from them	5	83%	2565
		Uses of nozzles that provide largest effective droplet	6	100%	2656

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
		size to minimize drift			
	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	6	100%	2656
	How often is spray equipment calibrated?	Once per month	1	17%	445
		Prior to each application	5	83%	2211
Section 5: Dormant Spray Management	How many acres are sprayed with dormant pesticides?	No Dormant Sprays	6	100%	2656

Figure 21. Duck Slough @ Gurr Rd crop acreage information from member surveys (2010).

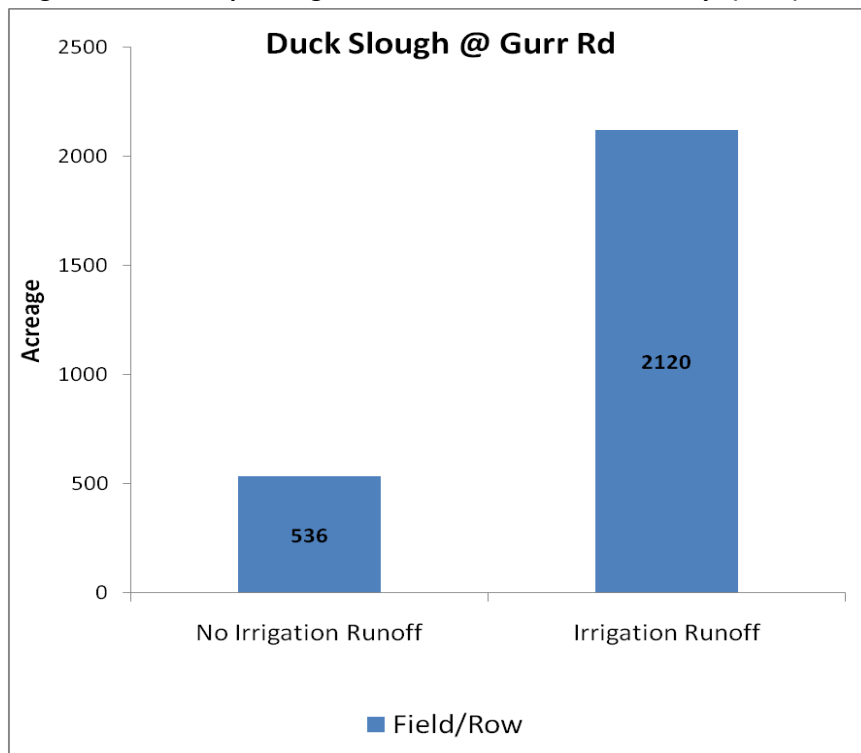
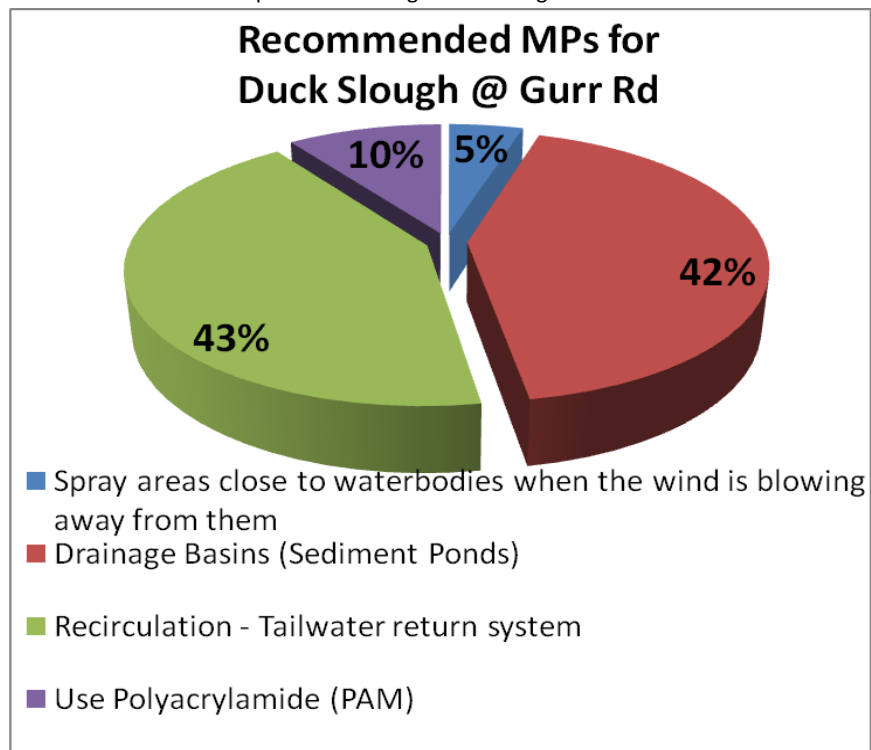


Figure 22. Percent of acreage represented by recommended management practices for Duck Slough @ Gurr Rd.
Recommended practices are associated with parcels with irrigation drainage.



Summary of Implemented (2010/2011) Management Practices

Table 26 is a comparison of recommended management practices and newly implemented management practices for the Duck Slough subwatershed. Growers in the Duck Slough subwatershed were able to implement management practices that focused on spray drift management including spraying areas close to waterbodies when the wind is blowing away from them and shutting off outside nozzles when spraying outer rows next to sensitive sites (Table 26, Figure 23). Growers implemented recommended practices as well as practices that were not specifically recommended for their operations (accounting for 713 acres of land with and without irrigation drainage). Figure 23 displays each of the newly implemented management practices as a percentage of the overall acreage.

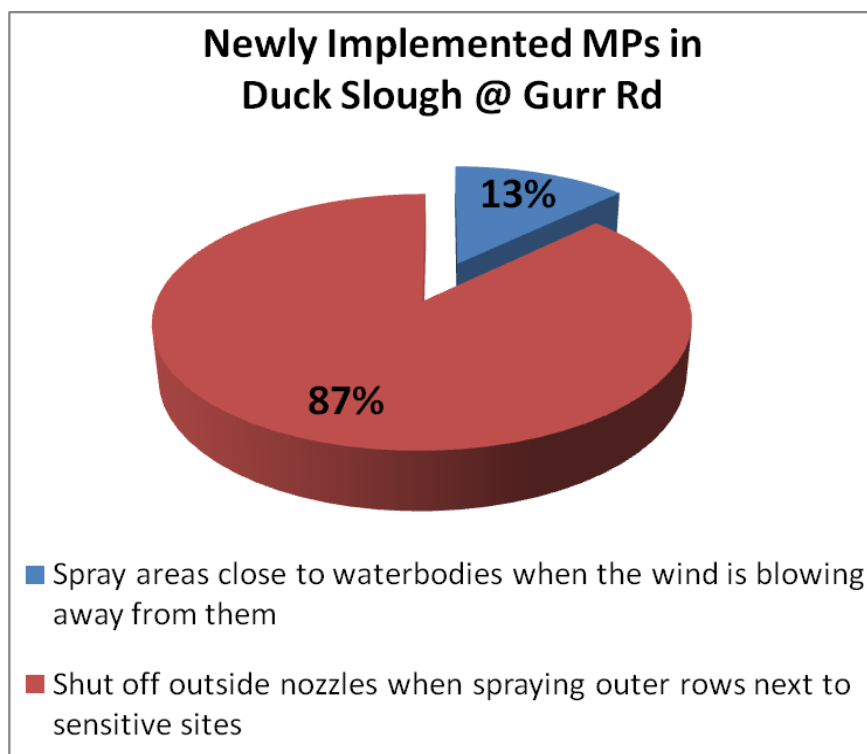
Table 26. Comparison of recommended MPs and implemented MPs in Duck Slough @ Gurr Rd subwatershed.

MANAGEMENT PRACTICE (SEPARATED BY NO DRAINAGE VS DRAINAGE)	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Spray areas close to waterbodies when the wind is blowing away from them	1	91	1	91	100%
Yes, irrigation drainage from property					
Drainage Basins (Sediment Ponds)	2	811	0	0	0%
Recirculation - Tailwater return system	2	811	0	0	0%
Use Polyacrylamide (PAM)	1	189	0	0	0%
Shut off outside nozzles when spraying outer rows next to sensitive sites	0	0	1	622 ¹	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					1,902
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					713
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					37%

¹ Management practice not specifically recommended by Coalition representative for grower's operation.

NA – Not applicable; no recommendations for the management practice in the subwatershed.

Figure 23. Percentage of acreage represented by newly implemented management practices for Duck Slough @ Gurr Rd.



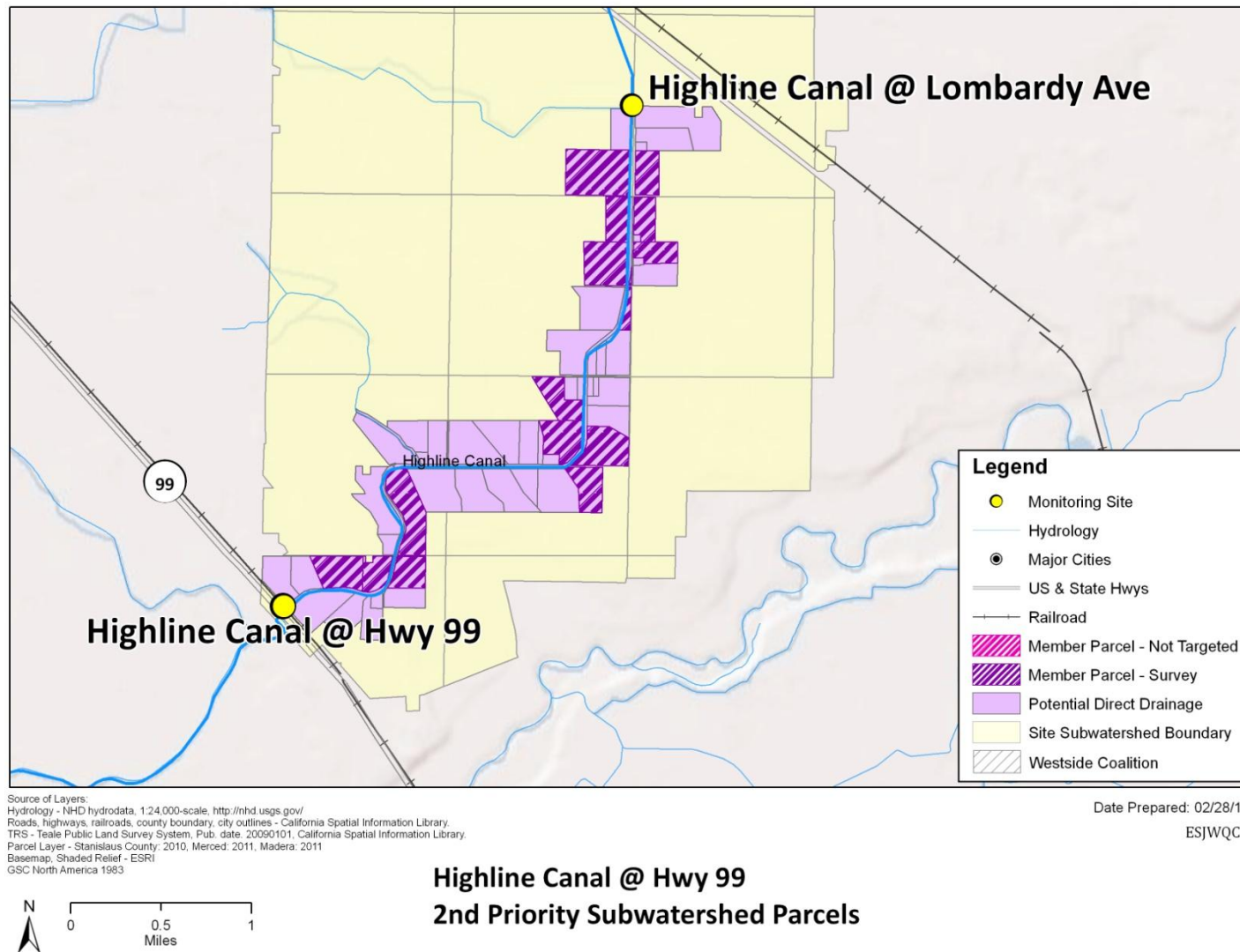
All growers who did not implement recommended management practices indicated they had no available resources to do so. One grower was unable to install the recommended recirculation/tailwater return system and drainage basin/sediment pond on his 622-acre property. However, the same grower indicated on his follow up survey that he began to shut off outside nozzles when spraying outer rows next to sensitive sites (Table 26).

Similar to the strategy for members without available resources in the Bear Creek @ Kibby Rd subwatershed, the Coalition will continue to notify its members about accessible funding and encourage them to take advantage of the opportunities.

Highline Canal @ Hwy 99

The Coalition contacted and received completed surveys from 10 targeted growers representing 33% of the direct drainage acreage within the Highline Canal @ Hwy 99 subwatershed (Table 11, Figure 24). Of the 10 targeted growers, one grower dropped their Coalition membership and one grower discontinued enrolling parcels within the Highline Canal subwatershed. Consequently, eight growers completed follow up surveys (Table 27).

Figure 24. Highline Canal @ Hwy 99 member parcels with direct drainage potential.



Summary of Current and Recommended Management Practices (2009/2010)

Targeted growers in the Highline Canal @ Hwy 99 subwatershed primarily farm orchards, with some field/row crops. All growers reported no irrigation drainage from their properties in 2009 and 2010 (Figure 25). Highline Canal is a raised canal and only a few parcels are able to pump water into the canal. Therefore, Coalition representatives recommended three spray drift management practices to growers: spraying areas close to waterbodies when the wind is blowing away from them, using air blast applications when wind is between three and 10 mph, and using nozzles that provide the largest effective droplet size to minimize drift (Figure 26). Since targeted parcels in the Highline Canal do not drain, the Coalition believes eliminating spray drift is the most effective method to improve water quality in the canal.

Irrigation Water Management

Growers in the Highline Canal @ Hwy 99 subwatershed reported a variety of irrigation systems in use on their fields, and some growers reported they employ more than one system on their property. Only two growers accounting for 49% of the acreage indicated they use surface (flood) irrigation techniques. Eight of the 10 growers use sprinklers; some members have a combination of sprinkler and microirrigation (Table 27). One grower, farming 121 acres, employs surface, sprinkler, and microirrigation on his operation. Thirty percent of the respondents irrigate based on soil moisture levels, 60% allow the irrigation district deliveries to dictate their watering schedule and one grower did not respond to the question.

Erosion & Sediment Management / Storm Drainage

All respondents indicated they control erosion and sediment discharge by some means. Two growers indicated they have storm water discharge only in the case of a heavy 100-year storm (Table 27).

Dormant Sprays

Three of the seven members farming 215 acres, apply dormant sprays (Table 30). All three were informed of DPRs Dormant Spray Regulations and allow vegetation cover to grow prior to spraying.

Pest Management

Half of respondents, representing 38% of the acreage, indicated they do not apply herbicides in the winter. Of the growers with winter herbicide applications, 30% apply glyphosate, 20% apply paraquat, 10% apply Goal and 10% indicated they apply herbicides but do not know which ones (Table 27). Half of the respondents indicated they considered alternatives to using diazinon or chlorpyrifos during the growing season, and the other half indicated the question is not applicable to their operation. Seven respondents indicated they calibrate their nozzles prior to each application, and two growers calibrate their nozzles once a year; one grower did not respond. The majority of growers took numerous steps to manage their spray drift including adjusting spray nozzles to match the canopy profile (90%), shutting outside nozzles when spraying outer two rows (90%), spraying areas close to waterbodies when the wind is blowing away from them (80%), using air blast applications when wind is between three to 10 mph (30%), and using nozzles that provide the largest effective droplet size to minimize drift (80%, Table 27).

Table 27. Highline Canal @ Hwy 99 subwatershed current management practices (2010).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	6	60%	201
	Irrigation System	Microirrigation	4	40%	226
		Sprinkler	8	80%	277
		Surface	2	20%	181
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	3	30%	90
		Irrigation District Deliveries	6	60%	253
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	8	80%	218
	When do you have storm water draining from your field?	No Storm Drainage	8	80%	323
		Only in heavy (100 year) storms	2	20%	45
		Grass Row Centers (Orchards, Vineyards)	6	60%	247
Section 3: Erosion & Sediment Management	Sediment management practices:	Maintain vegetated filter strips around field perimeter at least 10' wide	4	40%	169
		Vegetation is planted along or allowed to grow along ditches	5	50%	153
		Do not apply	5	50%	140
	Do you apply herbicides during winter months?	Glyphosate (Round-Up)	3	30%	148
		Goal	1	10%	121
		Other (product unknown)	1	10%	60
		Paraquat (Gramaxone)	2	20%	141
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	10	100%	368
Section 4: Pest Management	Spray management practices:	Adjust spray nozzles to match crop canopy profile	9	90%	337
		Outside nozzles shut off when spraying outer rows next to sensitive sites	9	90%	337
		Spray areas close to waterbodies when the wind is blowing away from them	8	80%	312
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	3	30%	47
Section 4: Pest Management	Spray management practices:	Use electronic controlled sprayer nozzles	1	10%	20

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
		Uses of nozzles that provide largest effective droplet size to minimize drift	8	80%	216
	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	5	50%	102
		Yes	5	50%	266
	How often is spray equipment calibrated?	Once per year	2	20%	70
		Prior to each application	7	70%	267
Section 5: Dormant Spray Management	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	2	20%	181
		Maintain setback zones	2	20%	181
	Do you apply when soil moisture is at field capacity?	N/A	1	10%	20
		No	2	20%	181
	Have you been informed of DPR's Dormant Spray Regulations?	Yes	3	30%	201
	How many acres are sprayed with dormant pesticides?	120 Acres	1	10%	121
		35 Acres	1	10%	20
		60 Acres	1	10%	60
		No Dormant Sprays	7	70%	167
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Vegetative cover	3	30%	201

Figure 25. Highline Canal @ Hwy 99 crop acreage information from member surveys (2010).

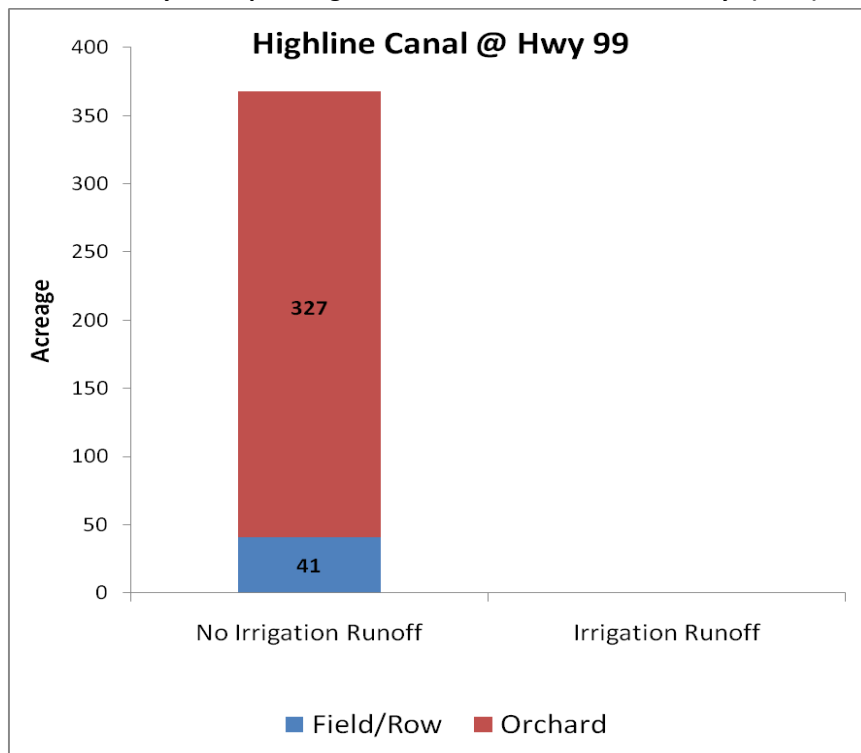
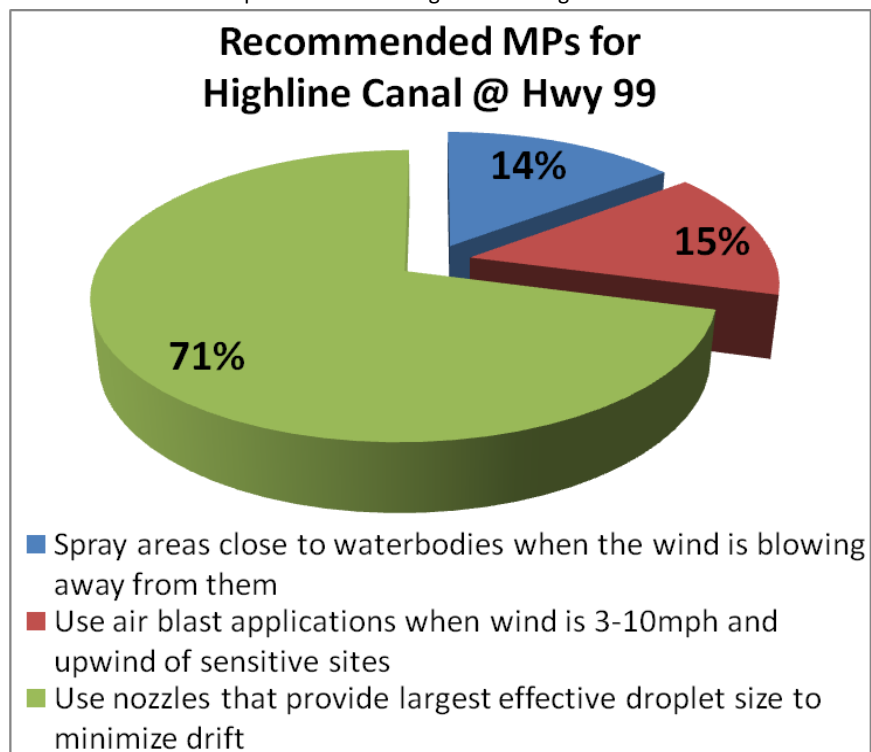


Figure 26. Percent of acreage represented by recommended management practices for Highline Canal @ Hwy 99.

Additional practices were recommended to parcels without irrigation drainage.



Summary of Implemented Management Practices (2010/2011)

Table 28 presents a comparison of Coalition recommended management practices and newly implemented management practices for the Highline Canal @ Hwy 99 subwatershed. Newly implemented management practices include all recommended practices including practices not specifically recommended by the Coalition (Table 31). New practices were implemented on 368 acres and include spraying areas close to waterbodies when the wind is blowing away from them, using air blast applications when wind is between three and 10 mph and upwind of sensitive sites, using nozzles that provide largest effective droplet size to minimize drift, and using less water during surface irrigation (Table 28).

During initial contacts, all growers indicated no irrigation drainage from their operations in 2009. A single grower reported irrigation drainage during 2010. For parcels without irrigation drainage, newly implemented practices include reducing the amount of water used in surface irrigation, using air blast applications when the wind is 3-10 mph and upwind of sensitive sites and spraying areas close to waterbodies when the wind is blowing away from them (Figure 27). For parcels with irrigation drainage, growers reduced water use during irrigation and utilized nozzles that provided the largest effective droplet size (Figure 28).

Table 28. Comparison of recommended MPs and implemented MPs in Highline Canal @ Hwy 99 subwatershed.

MANAGEMENT PRACTICE	RECOMMENDED PRACTICES		IMPLEMENTED PRACTICES		% RECOMMENDED ACREAGE WITH IMPLEMENTED PRACTICES
	# GROWERS	ACRES	# GROWERS	ACRES	
No irrigation drainage from property					
Spray areas close to waterbodies when the wind is blowing away from them	1	25	1	25	100%
Use air blast applications when wind is 3-10 mph and upwind of sensitive sites	1	25	1	25	100%
Reduce amount of water used in surface irrigation	0	0	2	76 ¹	NA
Yes, irrigation drainage from property					
Use nozzles that provide largest effective droplet size to minimize drift	1	121	1	121	100%
Reduce amount of water used in surface irrigation	0	0	1	121 ¹	NA
TOTAL ACREAGE WITH 1 OR MORE RECOMMENDED PRACTICES					171
TOTAL ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					368
PERCENT OF IMPLEMENTED PRACTICES COMPARED TO RECOMMENDED ACREAGE WITH 1 OR MORE IMPLEMENTED PRACTICES					215%

¹Management practice not specifically recommended by Coalition representative for grower's operation.

NA – Not applicable; no recommendations for the management practice in the subwatershed.

Figure 27. Percentage of acreage represented by newly implemented management practices for Highline Canal @ Hwy 99 for parcels with no irrigation drainage.

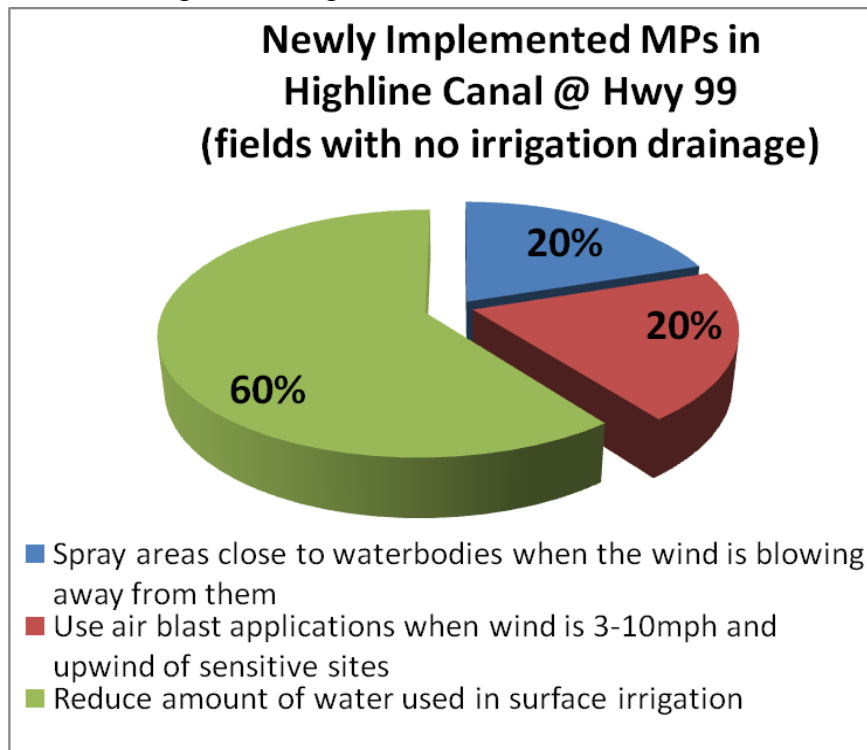
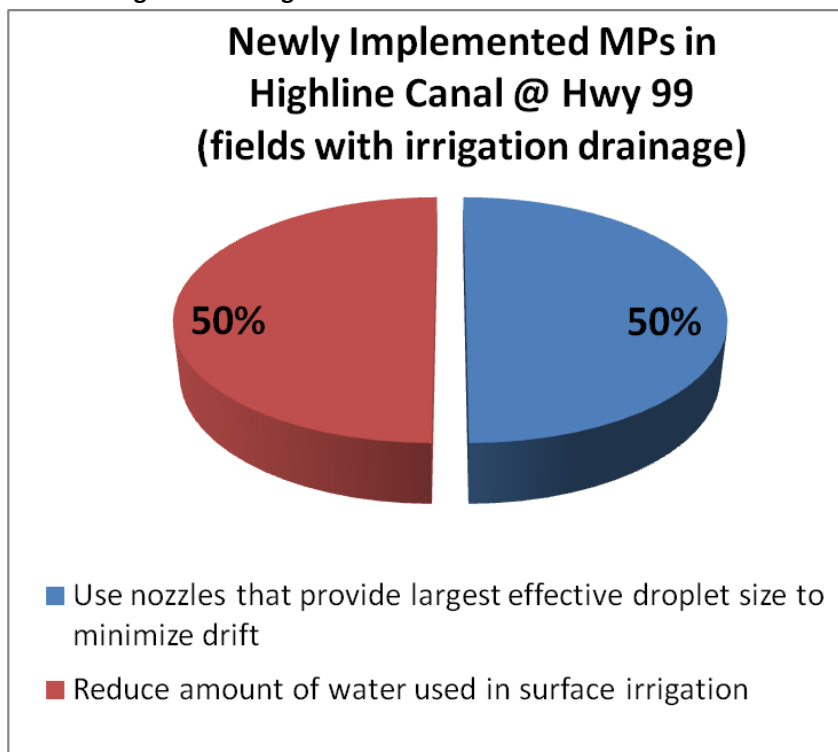


Figure 28. Percentage of acreage represented by newly implemented management practices for Highline Canal @ Hwy 99 for parcels with irrigation drainage.



THIRD PRIORITY SUBWATERSHEDS SUMMARY OF MANAGEMENT PRACTICES (2011-2013)

Focused outreach in third priority subwatersheds began in the fall of 2010 and will continue through 2013. The third priority subwatersheds include Berenda Slough along Ave 18 1/2 , Dry Creek @ Rd 18, Lateral 2 ½ near Keyes Rd and Livingston Drain @ Robin. The Coalition completed individual meetings and documented current management practices for 100% of targeted growers in the third priority subwatersheds (Table 12). In addition, the Coalition discussed water quality concerns with targeted growers and recommended management practices designed to address water quality exceedances that occurred within these waterbodies.

The Coalition met with a total of 72 members within the third priority subwatersheds (Table 29). Individual grower meetings with targeted members began in the fall of 2010 and continued through 2011. During the meetings, growers completed management practices surveys to document current and recommended practices. The surveys utilized for the third priority subwatersheds were similar to those used in the first and second priority subwatersheds. A preliminary analysis of current and recommended practices was conducted based on survey information obtained for practices in 2010 and/or 2011. This report includes a final summary of the initial surveys from all four third priority subwatersheds.

Follow up surveys will be conducted in 2012 to document any additional practices implemented in 2011 and/or 2012. Only growers who were specifically recommended to implement a management practice will be followed up with by the Coalition. A summary of the results of follow up contacts will be included in the 2013 MPUR.

Table 29. Tally of growers contacted for individual grower meetings in third set of high priority subwatersheds (2011-2013).

	BERENDA SLOUGH ALONG AVE 18 ½	DRY CREEK @ RD 18	LATERAL 2 ½ NEAR KEYES RD	LIVINGSTON DRAIN @ ROBIN AVE
Contacted to Schedule Individual Meeting	19	17	25	11
Dropped due to Lack of Response	0	0	0	0
PERCENT COMPLETE (INITIAL CONTACT)	100%	100%	100%	100%

Berenda Slough along Ave 18 ½

The Coalition contacted 19 targeted growers representing 4,103 acres, which is 38% of the direct drainage within the Berenda Slough along Ave 18 ½ subwatershed (Table 12, Table 30, Figure 29).

Summary of Current Management Practices (2010/2011)

Targeted growers within the Berenda Slough subwatershed are primarily orchard and vineyard operators; more than two thirds of which are properties with no irrigation drainage (Figure 30). The Berenda Slough subwatershed is in the southern portion of the Coalition region where well-drained, sandy soils dominate the landscape (Cottonwood Creek Zone, Zone 6).

Irrigation Water Management

Of those surveyed in the Berenda Slough subwatershed, 84% of the respondents accounting for 95% of the acreage use microirrigation (Table 30). Although three growers use flood irrigation (representing 199 acres), each of the three growers has implemented management practices to prevent offsite movement of pesticides via irrigation runoff, including laser leveling their fields (161 acres), installing recirculation/tailwater return systems (142 acres) and constructing drainage basin/sediment ponds (104 acres). Several growers throughout the subwatershed laser leveled fields (559 acres), operate recirculation/tailwater return systems (1,727 acres) or use drainage basin/sediment ponds (1,615 acres). The majority of respondents (89%) representing a majority of the acreage (98%) irrigate based on soil moisture levels. Five growers consider irrigation district deliveries when determining irrigation schedules; two of these five growers base irrigation schedules entirely on district deliveries (Table 30).

Storm Water Drainage

Eight of the 19 targeted growers report storm water drainage; 63% of the acreage can experience storm water drainage every year once soil is saturated (Table 30). Of the growers with storm drainage, four are able to control the timing of drainage to ditches/waterways (1,360 acres) and six growers installed both recirculation/tailwater return systems and settling ponds (1,472 acres) (Table 33).

Erosion & Sediment Management

All targeted growers implement at least one management practice to control sediment erosion. Grass row centers are utilized in vineyards and orchards representing 91% of the targeted acreage (Table 30). Growers representing 63% of the acreage maintain vegetated filter strips around field perimeters at least 10 feet wide, and growers farming 65% of the acreage allow or plant vegetation along ditches (Table 30). Eighteen of the 19 growers apply one or more herbicides during the winter; glyphosate is the most commonly used product (Table 33).

Pest Management

Targeted growers in the Berenda Slough subwatershed employ numerous spray management practices including: adjusting spray nozzles to match crop canopy profile (89% of respondents), shutting off outside nozzles when spraying outer rows next to sensitive sites (89% of respondents), spraying areas close to waterbodies when the wind is blowing away from them (95% of respondents), using air blast applications when wind is between three and 10 mph and upwind of a sensitive site (84% of

respondents), and using nozzles that provide largest effective droplet size to minimize drift (95% of respondents). Eighty-four percent of respondents calibrate sprayers before every application (Table 30).

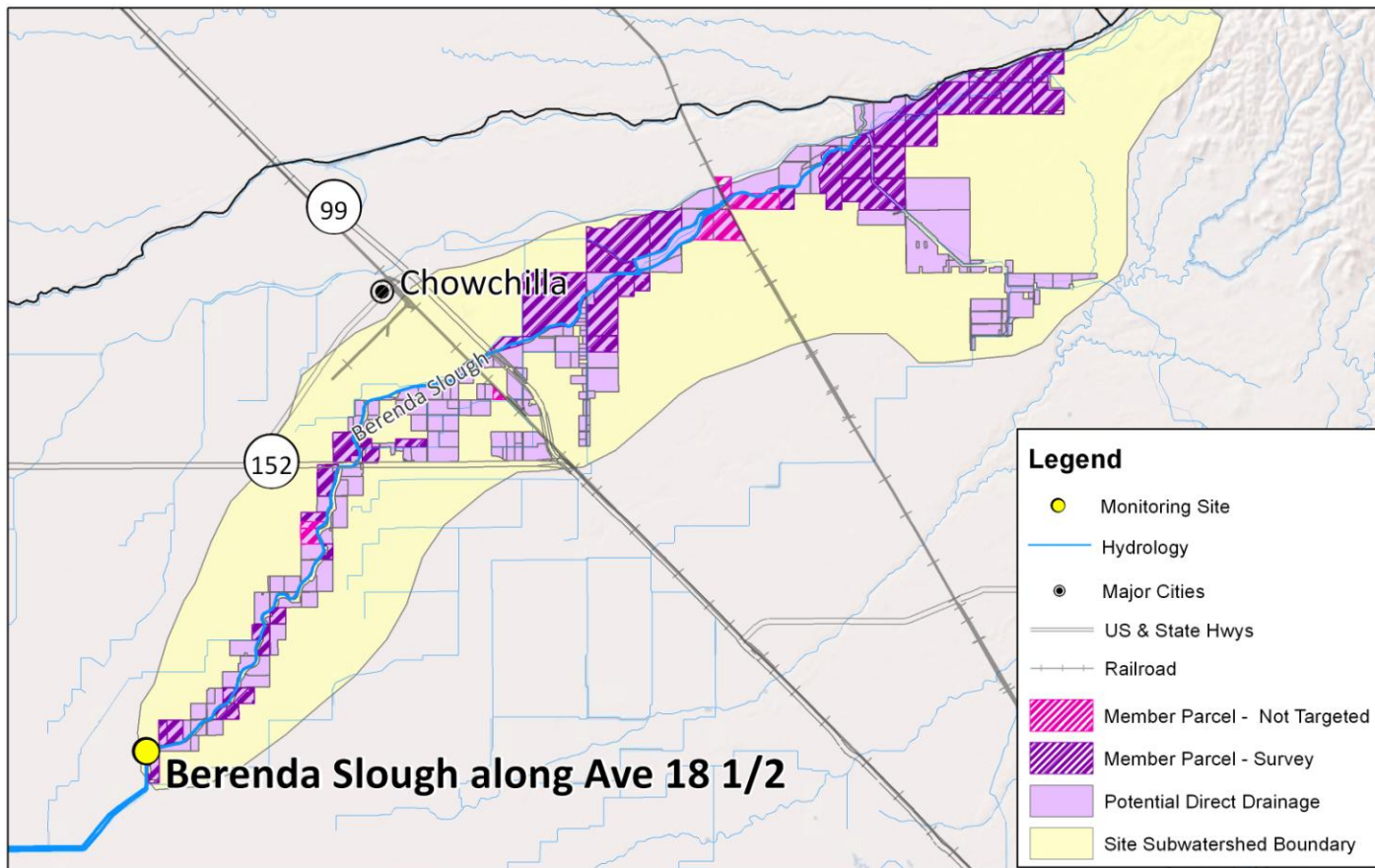
Dormant Spray Management

Only three targeted growers farming 323 acres in the Berenda Slough subwatershed apply dormant sprays (Table 33). All three growers always check weather conditions prior to spraying and maintain set back zones. Two of the growers maintain vegetation cover with sprayed berms (Table 30).

Recommended Management Practices

Coalition representatives made several recommendations to one grower, including utilizing grass row centers, shutting off outside nozzles when spraying outer rows next to sensitive sites , and spraying areas close to waterbodies when the wind is blowing away from them (Figure 31). The Coalition recommended to one grower with storm water runoff to install a settling pond. A second grower with storm runoff received recommendations to install and/or improve berms along field perimeters and install a device to control the timing of storm water runoff (Figure 31).

Figure 29. Berenda Slough @ along Ave 18 ½ member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library.
 TRS - Teale Public Land Survey System, Pub. date. 20090101, California Spatial Information Library.
 Parcel Layer - Stanislaus 2010, Merced 2011, Madera 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 02/23/12

ESJWQC



Berenda Slough along Ave 18 1/2 3rd Priority Subwatershed Parcels

ESJWQC_2011v3

Table 30. Berenda Slough @ along Ave 18 ½ subwatershed current management practices (2010/2011).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	8	42%	559
		Recirculation - Tailwater return system	8	42%	1,727
		Use drainage basins (sediment ponds) to capture and retain runoff	6	32%	1,615
	Irrigation System	Microirrigation	16	84%	3,905
		Sprinkler	1	5%	166
		Surface	3	16%	199
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	17	89%	4,009
		Irrigation District Deliveries	5	26%	371
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	11	58%	801
		Pump/Drain into waterway & able to control timing	4	21%	1,360
		Pump/Drain into waterway & unable to control timing	4	21%	1,943
		Recirculation - Tailwater return system	6	32%	1,472
		Settling Pond	6	32%	1,472
	When do you have storm water draining from your field?	After soil is saturated-late winter	5	26%	2,573
		No Storm Drainage	11	58%	801
		Only in heavy (100 year) storms	3	16%	730
Section 3: Erosion & Sediment Management	Do you apply herbicides during winter months?	Do not apply	1	5%	57
		Glyphosate (Round-Up)	17	89%	3,881
		Goal	10	53%	1,223
		Other (including Prowl, Chateau, Surflan, others)	6	32%	1,569
		Paraquat (Gramaxone)	5	26%	1,500
		Simazine (Princep)	1	5%	1,214
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	19	100%	4,104
	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	14	74%	3,754
		Maintain vegetated filter strips around field perimeter at least 10' wide	14	74%	2,592
		Vegetation is planted along or allowed to grow along ditches	7	37%	2,656
Section 4: Pest	Have you considered alternative	N/A	16	84%	3,767

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Management	strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	Yes	3	16%	337
	How often is spray equipment calibrated?	Once per month	2	11%	681
		Once per year	1	5%	50
		Prior to each application	16	84%	3,373
	Spray management practices:	Adjust spray nozzles to match crop canopy profile	17	89%	4,009
		Outside nozzles shut off when spraying outer rows next to sensitive sites	17	89%	4,011
		Spray areas close to waterbodies when the wind is blowing away from them	18	95%	4,068
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	16	84%	2,795
		Use electronic controlled sprayer nozzles	2	11%	216
		Uses of nozzles that provide largest effective droplet size to minimize drift	18	95%	4,047
Section 5: Dormant Spray Management	Do you apply when soil moisture is at field capacity?	No	1	5%	166
		Yes	2	11%	157
	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	3	16%	323
		Maintain setback zones	3	16%	323
	Have you been informed of DPR's Dormant Spray Regulations?	N/A	3	16%	323
	How many acres are sprayed with dormant pesticides?	104.43 Acres	1	5%	104
		166 Acres	1	5%	166
		53 Acres	1	5%	53
		No Dormant Sprays	16	84%	3,781
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	No Vegetation & Not Disked	1	5%	166
		Vegetated Cover w/Sprayed Berms	2	11%	157

Figure 30. Berenda Slough @ along Ave 18 ½ crop acreage information from member surveys (2010/ 2011).

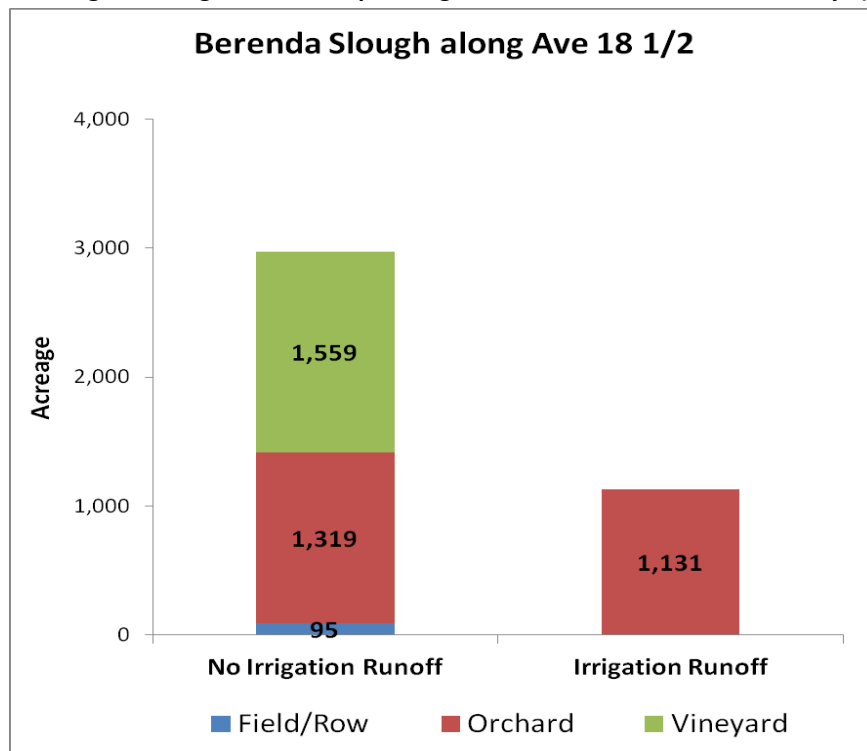
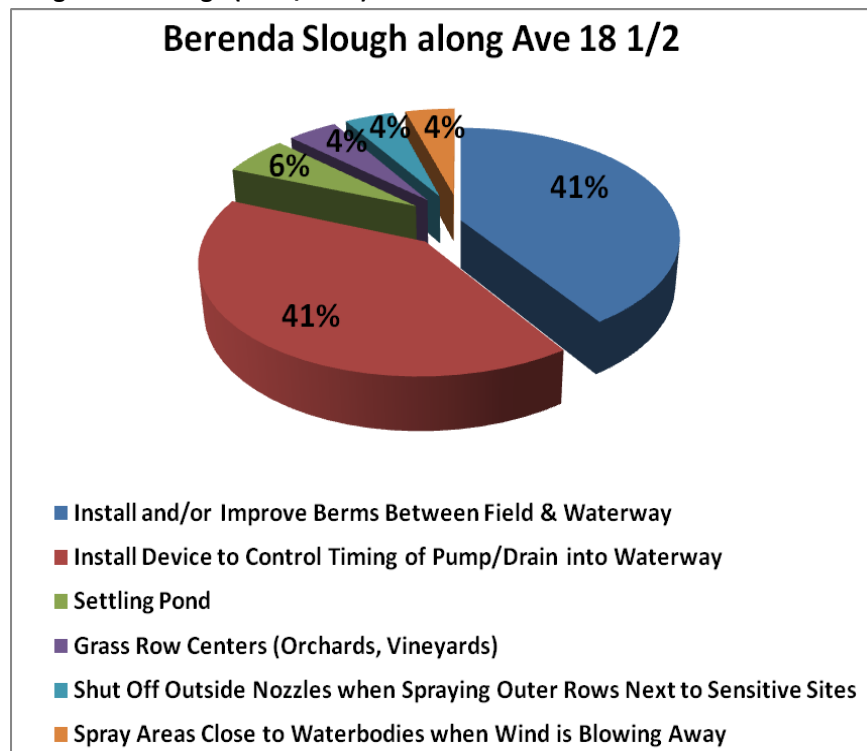


Figure 31. Berenda Slough @ along Ave 18 ½ recommended management practice acreage percentage for members with no irrigation drainage (2010/2011).



Dry Creek @ Rd 18

The Coalition contacted and received completed surveys from 17 targeted growers within the Dry Creek @ Rd 18 subwatershed (Table 31, Figure 32). The 17 members were surveyed for management practices currently implemented across 4,710 acres within the Dry Creek subwatershed, accounting for 53% of acres with direct drainage in the subwatershed (Table 12, Figure 32).

Summary of Current Management Practices (2010/2011)

Targeted growers in the Dry Creek subwatershed operate either orchards or vineyards; none of the targeted parcels have irrigation drainage (Figure 33). Like the Berenda Slough subwatershed, the Dry Creek subwatershed is in the southern portion of the Coalition region and is dominated by well-drained, sandy soils (Cottonwood Creek Zone, Zone 6).

Irrigation Water Management

The majority of targeted growers utilize microirrigation (96% of acreage). Of the five growers who either flood irrigate and/or microirrigate, all have laser leveled fields; one grower employs a recirculation/tailwater return system and drainage basin/sediment pond. The majority of growers, accounting for 98% of the targeted acreage, base irrigation schedules on crop moisture needs (Table 31).

Storm Drainage/ Erosion & Sediment Management/Pest Management/Dormant Sprays

Managing storm water runoff and spray drift are especially important in this subwatershed due to the lack of irrigation drainage. Growers received recommendations to install and/or improve berms between fields and waterways, install a device to control the timing of storm water discharge to drains/waterways, and spray areas close to waterbodies when the wind is blowing away from them (Figure 34).

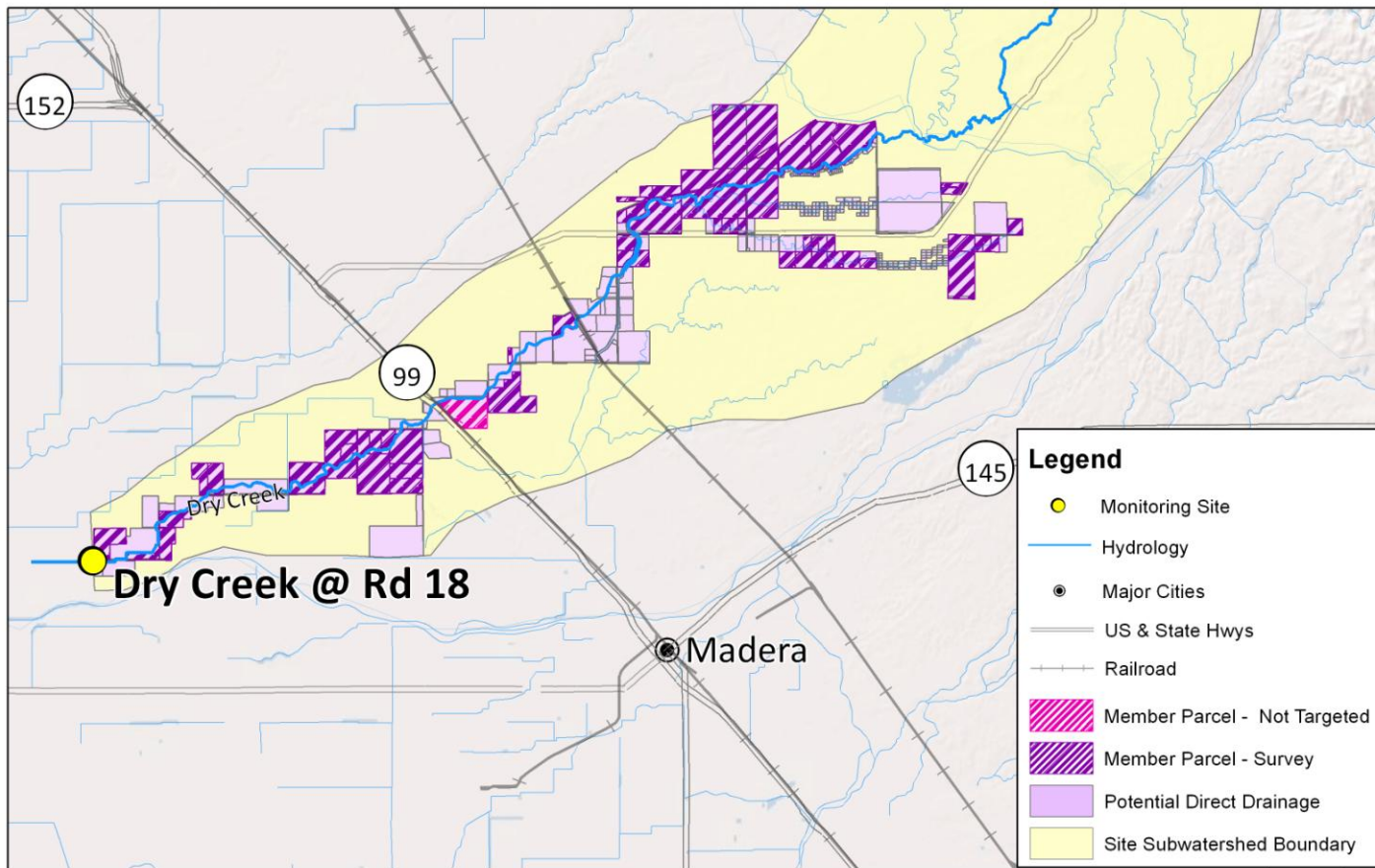
Four growers, accounting for half of the acreage, have storm water drainage every year (either during most storms events or only when soil is saturated in late winter). Each of these four growers employ one or more of the following practices to reduce agricultural storm runoff: grass row centers (2,364 acres), maintain vegetated filter strips around field perimeter at least 10 feet wide (1,446 acres), and/or allow or plant vegetation along ditches (139 acres)(Table 34). None of the four growers with storm drainage use dormant sprays; however, all four apply some type of herbicide during the winter. Coalition representatives discussed the importance of preventing the offsite movement of agricultural constituents through storm water runoff, and the Coalition recommended one grower farming 213 acres install berms between the fields and creek (Figure 34).

Growers without storm drainage implemented sediment/erosion management practices (13 growers reported either no storm drainage or drainage only during 100 year storms). Eleven growers use grass row centers and 12 growers maintain vegetated filter strips around field perimeter at least 10 feet wide (Table 31).

Growers without storm water drainage also all apply herbicides during the winter. Two of the 13 growers, accounting for 2% of the targeted acreage, use dormant sprays. Both growers check weather conditions prior to spraying, maintain setback zones during applications, and only apply to fields with vegetated cover with sprayed berms. Neither grower applies chlorpyrifos or diazinon (Table 31).

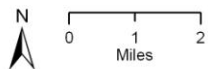
All growers employ several spray drift management practices. These include adjusting spray nozzles to match crop canopy profile (100% of respondents), shutting off outside nozzles when spraying outer rows next to sensitive sites (94% of respondents), spraying areas close to waterbodies when the wind is blowing away from them (94% of respondents), using air blast applications when wind is between three and 10 mph and upwind of a sensitive site (94% of respondents), and using nozzles that provide largest effective droplet size to minimize drift (100% of respondents). Ninety-four percent of targeted growers calibrate sprayers before every application (Table 31).

Figure 32. Dry Creek @ Rd 18 member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library.
 TRS - Teale Public Land Survey System, Pub. date. 20090101, California Spatial Information Library.
 Parcel Layer - Stanislaus 2010, Merced 2011, Madera 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 02/23/12
 ESJWQC



Dry Creek @ Rd 18 3rd Priority Subwatershed Parcels

ESJWQC_2011v3

Table 31. Dry Creek @ Rd 18 subwatershed current management practices (2010/2011).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	10	59%	2,029
		Recirculation - Tailwater return system	2	12%	639
		Use drainage basins (sediment ponds) to capture and retain runoff	2	12%	639
	Irrigation System	Microirrigation	14	82%	4,524
		Surface	5	29%	473
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	16	94%	4,612
		Irrigation District Deliveries	2	12%	108
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	9	53%	1,769
		Pump/Drain into waterway & unable to control timing	7	41%	2,752
		Recirculation - Tailwater return system	1	6%	10
		Settling Pond	1	6%	10
	When do you have storm water draining from your field?	After soil is saturated-late winter	3	18%	2,151
		No Storm Drainage	9	53%	1,769
		On most rain events	1	6%	213
		Only in heavy (100 year) storms	4	24%	577
Section 3: Erosion & Sediment Management	Do you apply herbicides during winter months?	Diuron (Karmex)	2	12%	1,148
		Glyphosate (Round-Up)	11	65%	2,800
		Goal	12	71%	2,920
		Other (Herbicides including Prowl, Chateau, Surflan, others)	14	82%	4,351
		Paraquat (Gramaxone)	5	29%	2,082
		Simazine (Princep)	1	6%	54
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	17	100%	4,710
	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	15	88%	4,023
		Maintain vegetated filter strips around field perimeter at least 10' wide	15	88%	3,163
		Vegetation is planted along or allowed to grow along ditches	1	6%	139

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 4: Pest Management	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	17	100%	4,710
	How often is spray equipment calibrated?	Once per year	1	6%	10
		Prior to each application	16	94%	4,700
	Spray management practices:	Adjust spray nozzles to match crop canopy profile	17	100%	4,710
		Outside nozzles shut off when spraying outer rows next to sensitive sites	16	94%	4,443
		Spray areas close to waterbodies when the wind is blowing away from them	16	94%	4,588
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	16	94%	4,656
		Use electronic controlled sprayer nozzles	1	6%	98
		Uses of nozzles that provide largest effective droplet size to minimize drift	17	100%	4,710
Section 5: Dormant Spray Management	Do you apply when soil moisture is at field capacity?	N/A	1	6%	10
		No	1	6%	98
	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	2	12%	108
		Maintain setback zones	2	12%	108
	Have you been informed of DPR's Dormant Spray Regulations?	Yes	2	12%	108
	How many acres are sprayed with dormant pesticides?	10 Acres	1	6%	10
		97 Acres	1	6%	98
		No Dormant Sprays	15	88%	4,602
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Vegetated Cover w/Sprayed Berms	2	12%	108

Figure 33. Dry Creek @ Rd 18 crop acreage information from member surveys (2010/ 2011).

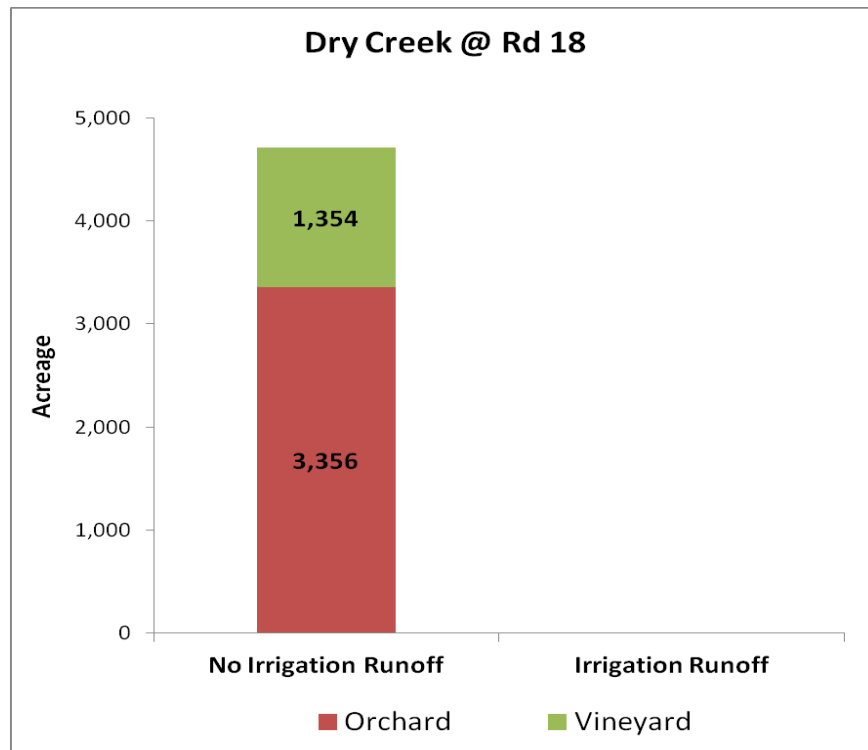
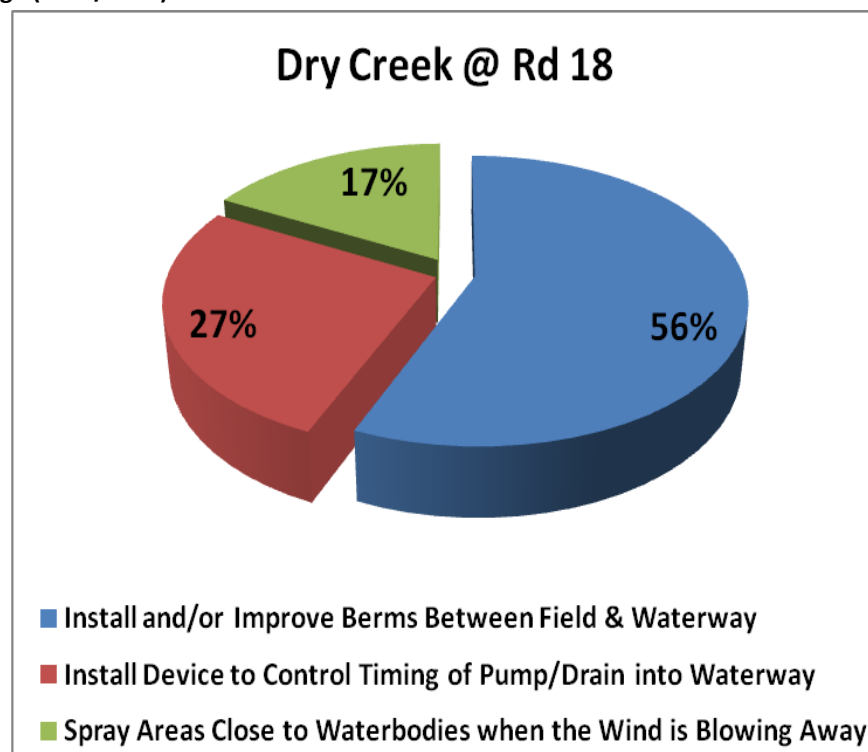


Figure 34. Dry Creek @ Rd 18 recommended management practice acreage percentage for members with no irrigation drainage (2010/2011).



Lateral 2 ½ near Keyes Rd

The Coalition contacted and received completed surveys from 25 targeted growers accounting for 1,826 acres and representing 47% of the direct drainage acreage within the Lateral 2 ½ near Keyes Rd subwatershed (Table 12, Figure 35). The Coalition divided Lateral 2 ½ near Keyes Rd subwatershed in half due to its size. Coalition representatives are focusing on members below Highway 99 who have the most potential to affect water quality sampled at Keyes Road (Figure 33).

Summary of Current Management Practices (2010/2011)

Targeted growers in the Lateral 2 ½ subwatershed farm field/row crops (approximately 40% of acreage) and orchard/ vineyards (approximately 60% of acreage, Figure 36). All targeted growers indicated no irrigation drainage from their operations and implemented management practices to prevent the transport of pesticides to waterways if irrigation drainage were to occur (e.g. recirculation/tailwater return systems, filter strips, etc.). The Coalition made specific recommendations to growers to reduce offsite movement of pesticides via spray drift, including calibrating spray equipment before every application, shutting off outside nozzles when spraying outer rows next to sensitive sites, spraying areas close to waterbodies when the wind is blowing away from them, and using nozzles that provide largest effective droplet size to minimize drift (Figure 37).

Irrigation Water Management

The majority of targeted growers in the Lateral 2 ½ subwatershed use flood irrigation for at least a portion of their operation (84% of respondents), whereas only 20% of respondents indicated using microirrigation for at least a portion of their operations. Laser leveling of fields is a common practice across the subwatershed (98% of acreage). Thirty percent of acreage in the Lateral 2 ½ subwatershed use recirculation/tailwater return systems. The majority of growers in the subwatershed base their irrigation schedule on irrigation district deliveries (88% of respondents) (Table 32).

Storm Drainage

There is no storm drainage from any of the targeted acreage in the Lateral 2 ½ subwatershed (Table 32).

Erosion & Sediment Management

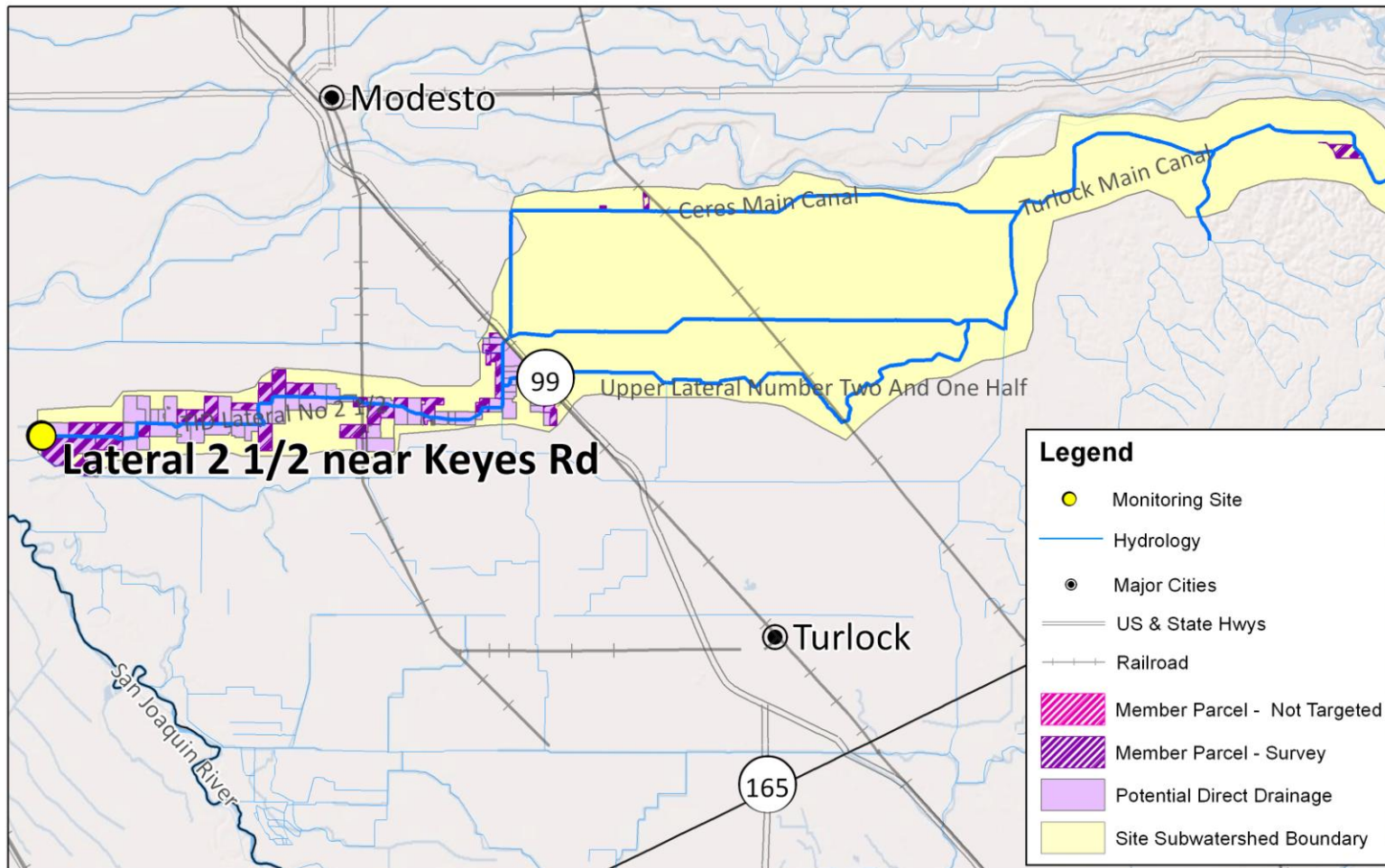
Several growers implement sediment and erosion management practices (Table 32). Filter strips are maintained around the field perimeter at least 10 feet wide on 20% of acreage, vegetation is planted or allowed to grow in ditches on 26% of acreage, and grass row centers are maintained on 43% of acreage (grass row centers are only applicable to orchards and vineyards which account for 60% of acreage in Lateral 2 ½) (Table 32).

Pest Management / Dormant Sprays

The majority of growers use herbicides during the winter (88% of respondents) and five growers apply dormant sprays (Table 32). Growers employ several spray management practices, including adjusting spray nozzles to match crop canopy profile (92% of respondents), shutting off outside nozzles when spraying outer rows next to sensitive sites (88% of respondents), spraying areas close to waterbodies when the wind is blowing away from them (88% of respondents), using air blast applications when wind

is between three and 10 mph and upwind of a sensitive site (48% of respondents), using nozzles that provide largest effective droplet size to minimize drift (92% of respondents), and calibrating spray equipment prior to every application (88% of respondents). In addition, growers with dormant sprays check weather conditions prior to spraying (four of five growers) and maintain setback zones (three of five growers); all growers apply to fields with vegetative cover (Table 32).

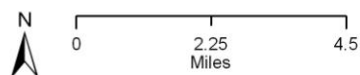
Figure 35. Lateral 2 ½ near Keyes Rd member parcels with direct drainage potential.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date. 20090101, California Spatial Information Library
 Parcel Layer - Stanislaus 2010, Merced 2011, Madera 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1983

Date Prepared: 03/02/12

ESJWQC



Lateral 2 1/2 near Keyes Rd 3rd Priority Subwatershed Parcels

ESJWQC_2011v3

Table 32. Lateral 2 ½ near Keyes Rd subwatershed current management practices (2011).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	24	96%	1,783
		Recirculation - Tailwater return system	2	8%	553
		Use drainage basins (sediment ponds) to capture and retain runoff	1	4%	35
	Irrigation System	Microirrigation	5	20%	538
		Sprinkler	3	12%	116
		Surface	21	84%	1,602
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	2	8%	114
		Irrigation District Deliveries	22	88%	1,668
		Unanswered	1	4%	45
Section 2: Storm Drainage	How are you able to manage storm drainage?	No Storm Drainage	25	100%	1,827
	When do you have storm water draining from your field?	No Storm Drainage	25	100%	1,827
Section 3: Erosion & Sediment Management	Do you apply herbicides during winter months?	Do not apply	3	12%	623
		Glyphosate (Round-Up)	20	80%	1,070
		Goal	14	56%	824
		Paraquat (Gramaxone)	8	32%	415
		Matrix	1	4%	60
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	25	100%	1,827
	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	16	64%	786
		Maintain vegetated filter strips around field perimeter at least 10' wide	4	16%	365
		Vegetation is planted along or allowed to grow along ditches	5	20%	478
Section 4: Pest Management	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	8	32%	790
		Yes	17	68%	1,037
	How often is spray equipment calibrated?	Never	1	4%	44
		Once per month	1	4%	25
		Once per year	1	4%	45

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
	Spray management practices:	Prior to each application	22	88%	1,713
		Adjust spray nozzles to match crop canopy profile	23	92%	1,650
		Outside nozzles shut off when spraying outer rows next to sensitive sites	22	88%	1,435
		Spray areas close to waterbodies when the wind is blowing away from them	22	88%	1,489
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	12	48%	774
		Use electronic controlled sprayer nozzles	2	8%	105
		Uses of nozzles that provide largest effective droplet size to minimize drift	23	92%	1,534
Section 5: Dormant Spray Management	Do you apply when soil moisture is at field capacity?	N/A	2	8%	90
		No	3	12%	266
	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	4	16%	346
		Maintain setback zones	3	12%	131
	Have you been informed of DPR's Dormant Spray Regulations?	N/A	1	4%	25
		No	1	4%	26
		Yes	3	12%	305
	How many acres are sprayed with dormant pesticides?	10 Acres	1	4%	10
		136 Acres	1	4%	215
		25 Acres	1	4%	25
		26 Acres	1	4%	26
		80 Acres	1	4%	80
		No Dormant Sprays	20	80%	1,471
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Vegetative cover	5	20%	356

Figure 36. Lateral 2 ½ near Keyes Rd crop acreage information from member surveys (2011).

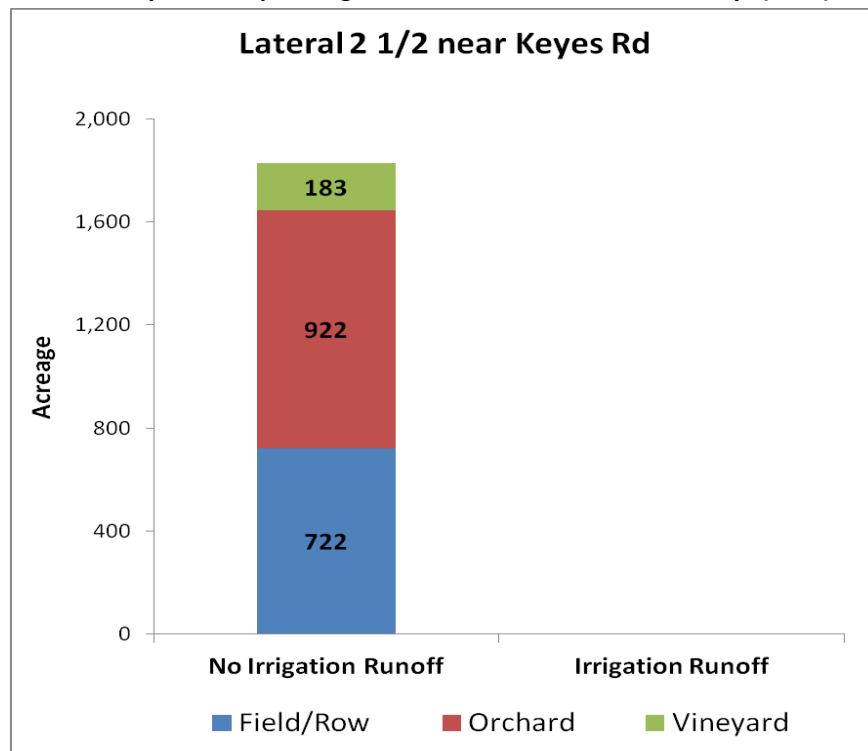
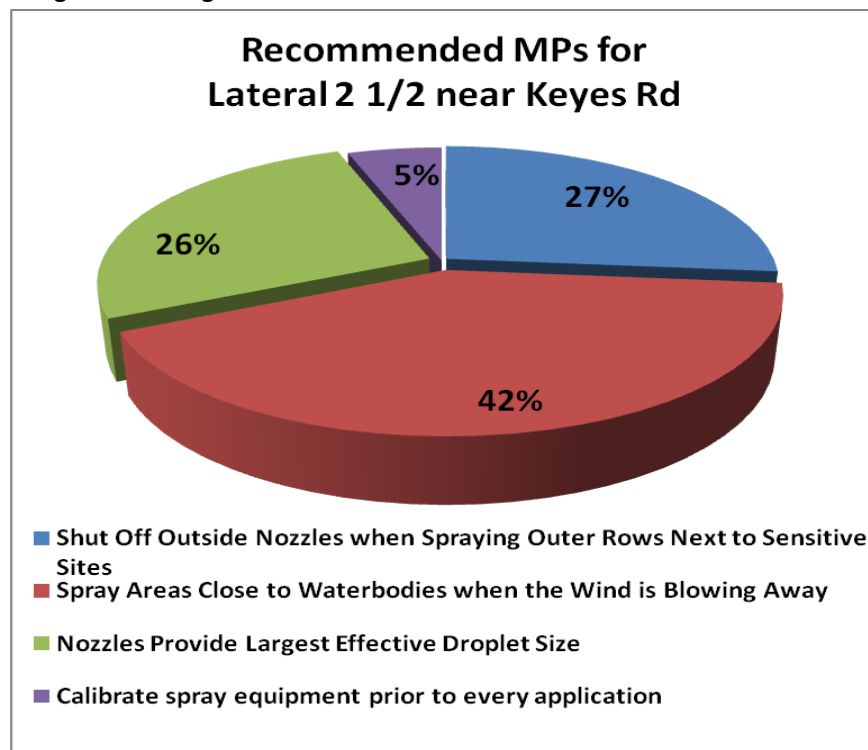


Figure 37. Lateral 2 ½ near Keyes Rd recommended (2012) management practice acreage percentage for members with no irrigation drainage.



Livingston Drain @ Robin Ave

The Coalition contacted and received completed surveys from 11 targeted growers farming 335 acres, which represents 23% of the direct drainage area within the Livingston Drain @ Robin Ave subwatershed (Table 12, Figure 38).

Summary of Current Management Practices (2010/2011)

Of the parcels surveyed in the Livingston Drain subwatershed, at least 73% of the acreage is orchards and 16% of the acreage is field/row crops (Figure 39). One grower farming 39 acres (12% of acreage) reported operating both orchards and field/row crops. There is no irrigation drainage from any of the targeted growers' properties (Figure 40). The Coalition recommended management designed to address storm water retention (since targeted growers have no irrigation runoff) and to eliminate spray drift, which includes installing berms between field and waterways, spraying areas close to waterbodies when the wind is blowing away from them, and only applying air blast applications when the wind is between three and 10 mph and is upwind of a sensitive site (Figure 40).

Irrigation Management

None of the targeted growers in Livingston Drain irrigate their fields via flood irrigation—all growers use sprinkler, microirrigation and/or drip irrigation (Table 33). Sixty-eight percent of the acreage is laser leveled. One grower representing 18 acres (5% of acreage) noted his property is very sandy with no runoff and laser leveling is not recommended for the parcel. One grower farming 15 acres (9% of acreage), reported utilizing PAM in combination with a recirculation/tailwater return system and a drainage basin/sediment pond to capture and retain runoff (Table 33). The majority of respondents, accounting for the vast majority of acreage (71%), indicate they base irrigation scheduled on actual soil moisture levels (Table 33).

Erosion & Sediment Management

Nine of the 11 growers employ at least one type of sediment management practice, including maintaining vegetated filter strips around field perimeter at least 10 feet wide (57% of acreage), planting or allowing vegetation to grow along ditches (68% of acreage), and/or grass row centers (74% of acreage, Table 33).

Storm Water Drainage / Dormant Sprays

Two growers indicated there is storm water drainage from their fields, but only in heavy (100 year) storms (Table 33). One of the two growers with storm water drainage sprays 36 acres with pesticides. Dormant sprays are also applied by two additional growers who have no storm drainage. Overall dormant sprays are applied to 25% of the targeted acreage. All three of the growers applying dormant pesticides check weather conditions priority to spraying and maintain setback zones. At least 65 acres have some vegetation when dormant sprays occur (Table 33).

Pest Management

One targeted grower in the Livingston Drain subwatershed operates a 37-acre organic farm and does not apply any pesticides or herbicides (Table 33). The remaining 10 targeted growers implement

several spray management practices including calibrating prior to each spray application (seven growers), adjusting spray nozzles to match the canopy profile (10 growers), shutting off outside nozzles when spraying outer rows next to sensitive sites (10 growers), spraying areas close to waterbodies when the wind is blowing away from them (eight growers), and using nozzles that provide the largest effective droplet size to minimize drift (10 growers). Seven growers apply herbicides during the winter; glyphosate was the most common used herbicide. Only one grower farming 13 acres (4%) indicated they had not considered alternatives to chlorpyrifos and diazinon (Table 33).

Figure 38. Livingston Drain @ Robin Ave member parcels with direct drainage potential.

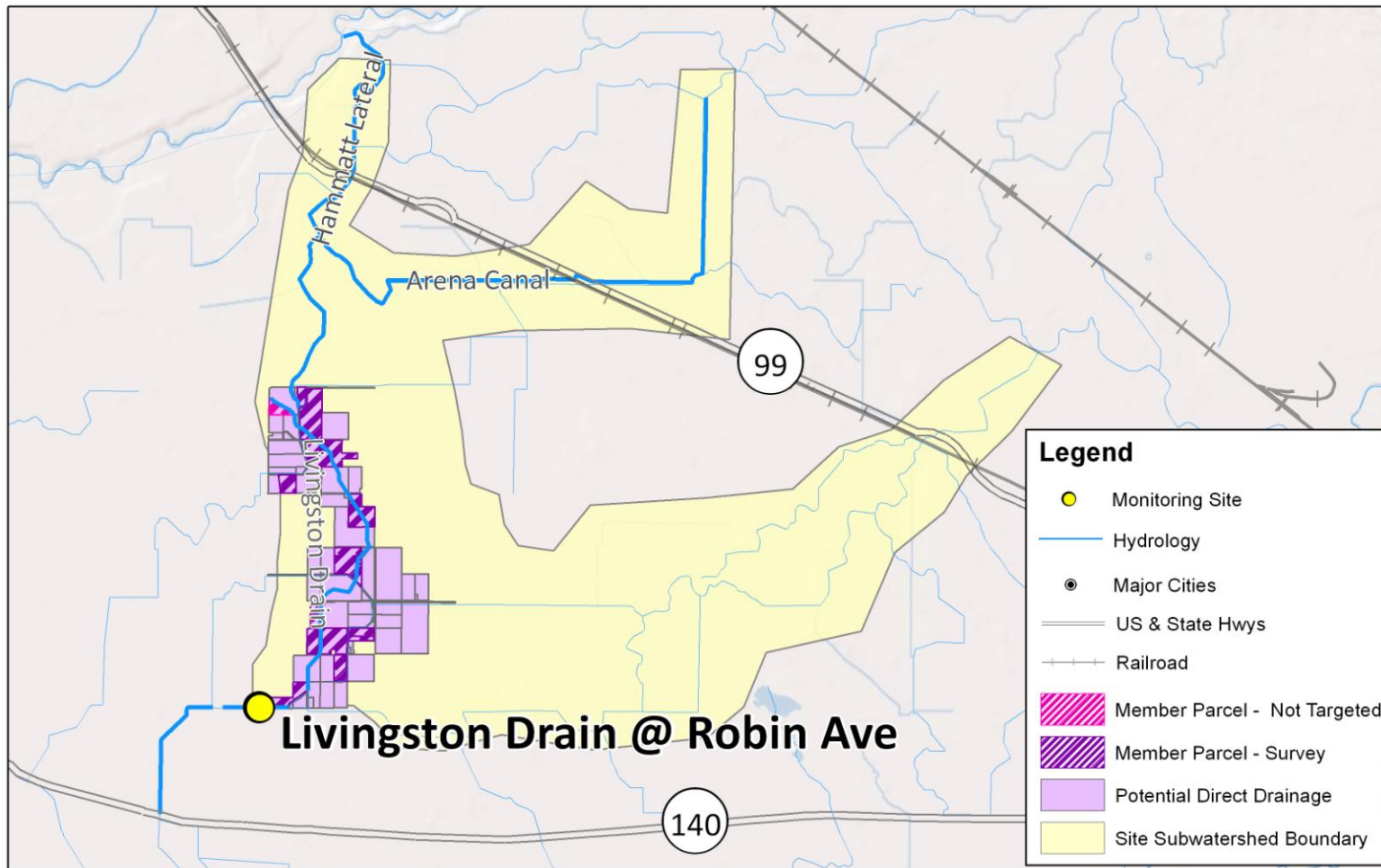


Table 33. Livingston Drain @ Robin Ave subwatershed current management practices (2011).

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
Section 1: Irrigation Water Management	Irrigation management practices:	Laser leveled fields	7	64%	229
		Recirculation - Tailwater return system	1	9%	15
		Use drainage basins (sediment ponds) to capture and retain runoff	1	9%	15
		Use of Polyacrylamide (PAM) to increase water infiltration and reduce furrow erosion	1	9%	15
	Irrigation System	Microirrigation	5	45%	128
		Sprinkler	5	45%	192
		Drip Irrigation	2	18%	54
	Which do you base your irrigation schedule on:	Actual Moisture Levels in soil/crop needs	6	55%	236
		Irrigation District Deliveries	3	27%	57
		Unanswered	2	18%	42
Section 2: Storm Drainage	How are you able to manage storm drainage?	Berms Between Field & Waterway (Install and/or Improve)	1	9%	71
		No Storm Drainage	9	82%	265
		Pump/Drain into waterway & able to control timing	1	9%	15
		Pump/Drain into waterway & unable to control timing	2	18%	56
		Recirculation - Tailwater return system	1	9%	15
		Settling Pond	1	9%	15
	When do you have storm water draining from your field?	No Storm Drainage	9	82%	265
		Only in heavy (100 year) storms	2	18%	70
Section 3: Erosion & Sediment Management	Do you apply herbicides during winter months?	Do not apply	4	36%	120
		Glyphosate (Round-Up)	6	55%	197
		Goal	3	27%	125
		Paraquat (Gramaxone)	5	45%	150
	If waterway crosses or borders pasture, how is livestock managed?	N/A - Not Pasture	11	100%	335
	Sediment management practices:	Grass Row Centers (Orchards, Vineyards)	7	64%	247
		Maintain vegetated filter strips around field perimeter at least 10' wide	6	55%	192

CHECKLIST	QUESTION	ANSWER	COUNT OF ANSWERS	% RESPONDENTS	SUM OF ASSOCIATED ACREAGE
		Vegetation is planted along or allowed to grow along ditches	7	64%	229
Section 4: Pest Management	Have you considered alternative strategies to using diazinon or chlorpyrifos either during the dormant or growing season?	N/A	4	36%	88
		No	1	9%	13
		Yes	6	55%	234
	How often is spray equipment calibrated?	Never (Does not spray)	1	9%	37
		Once per year	3	27%	84
		Prior to each application	7	64%	214
	Spray management practices:	Adjust spray nozzles to match crop canopy profile	10	91%	298
		Outside nozzles shut off when spraying outer rows next to sensitive sites	10	91%	298
		Spray areas close to waterbodies when the wind is blowing away from them	8	73%	188
		Use air blast applications when wind is between 3-10 mph and upwind of a sensitive site	5	45%	181
		Uses of nozzles that provide largest effective droplet size to minimize drift	10	91%	298
Section 5: Dormant Spray Management	Do you apply when soil moisture is at field capacity?	N/A	2	18%	42
		No	1	9%	41
	Dormant spray management practices:	Check weather conditions prior to spraying (i.e. storm status)	3	27%	83
		Maintain setback zones	3	27%	83
	Have you been informed of DPR's Dormant Spray Regulations?	Yes	3	27%	83
	How many acres are sprayed with dormant pesticides?	18 Acres	1	9%	18
		24 Acres	1	9%	24
		36 Acres	1	9%	41
		No Dormant Sprays	8	73%	252
	Prior to applying winter dormant sprays, what is the condition of your orchard floor?	Some vegetation	1	9%	41
		Vegetative cover	1	9%	24
		Unanswered	1	9%	18

Figure 39. Livingston Drain @ Robin Ave crop acreage information from member surveys (2011).

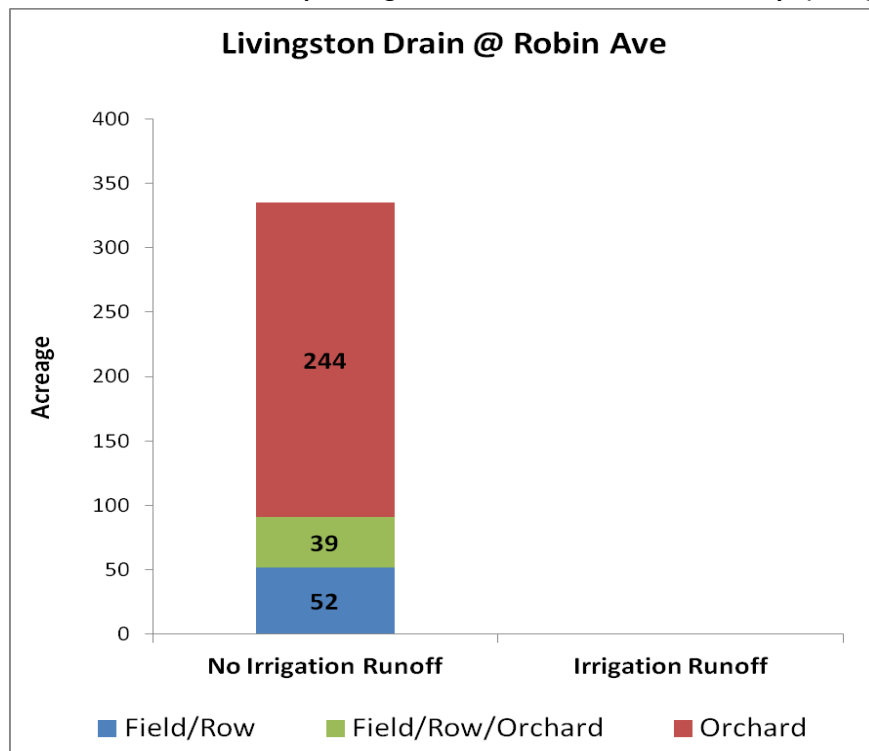
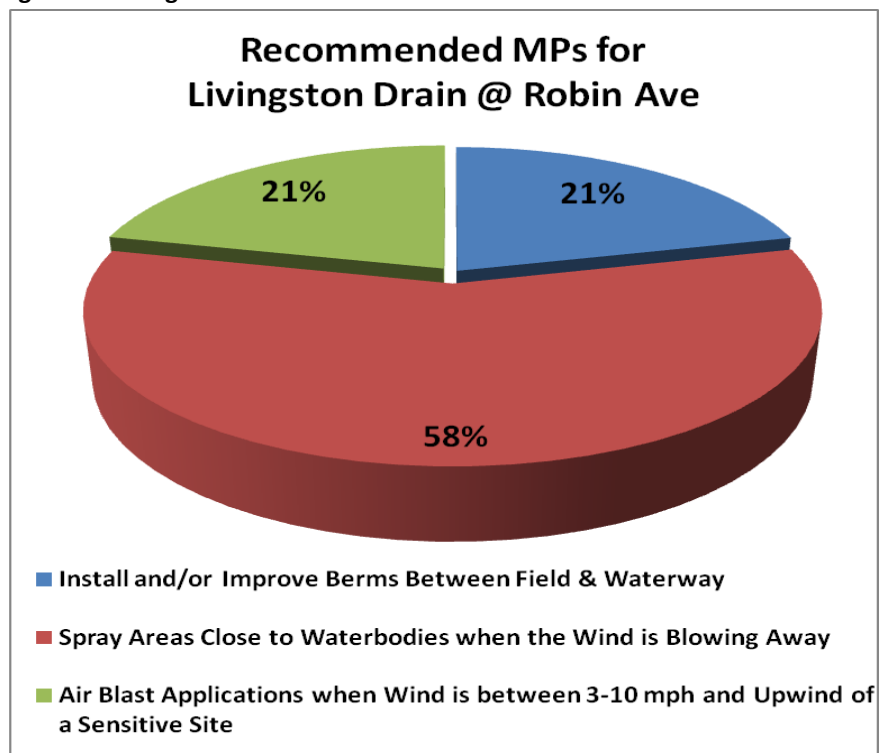


Figure 40. Livingston Drain @ Robin Ave recommended (2012) management practice acreage percentage for members with irrigation drainage.



FOURTH PRIORITY SUBWATERSHEDS SUMMARY OF MANAGEMENT PRACTICES (2012-2014)

The Coalition began focused outreach in fourth priority subwatersheds in January 2012. The Coalition compiled a list of targeted growers in the Black Rascal Creek @ Yosemite Rd (1), Deadman Creek @ Hwy 59 (2), Deadman Creek @ Gurr Rd (8) and Hilmar Drain @ Central Ave (3) subwatersheds. The Coalition mailed initial contact letters to growers on January 24, 2012 informing them of the high priority subwatershed Management Plan process, including growers' responsibilities, and requesting that members contact the Coalition to schedule an individual grower meeting (Table 13). The Coalition is scheduling individual meetings with targeted growers to discuss water quality concerns, document currently implemented management practices, and recommend additional management practices designed to address the water quality concerns.

The Coalition will provide a preliminary analysis of currently implemented and recommended management practices in the 2013 MPUR. The Coalition will continue with focused outreach in the fourth priority subwatersheds through 2014 which will include following up with growers to document newly implemented practices. In addition, the Coalition is scheduled to conduct MPM in these subwatersheds in 2012 through 2014 to evaluate changes in water quality and the effectiveness of Coalition outreach.

EVALUATION OF MANAGEMENT PRACTICE EFFECTIVENESS

The Coalition implemented its management plan process, which includes focused outreach and MPM, for three years in the first priority subwatersheds and for two years in the second priority subwatersheds (Table 34). The results of this process in the first and second priority subwatersheds provide the Coalition with data to evaluate management practice effectiveness.

Table 34. Years of current management practice, newly implemented management practices and water quality assessment for evaluating management practice effectiveness.

PRIORITY GROUP	YEAR(S) OF CURRENT MPs	YEAR(S) OF NEWLY IMPLEMENTED MPs	YEAR(S) OF WQ ASSESSMENT FOR EVALUATION
FIRST PRIORITY SUBWATERSHEDS			
Dry Creek @ Wellsford	2008, 2009	2009, 2010, 2011	2009, 2010, 2011
Duck Slough @ Hwy 99	2008	2009, 2010	2009, 2010, 2011
Prairie Flower Drain @ Crows Landing Rd	2008	2009, 2010	2009, 2010, 2011
SECOND PRIORITY SUBWATERSHEDS			
Bear Creek @ Kibby Rd	2009	2010, 2011	2010, 2011
Cottonwood Creek @ Rd 20	2009	2010, 2011	2010, 2011
Duck Slough @ Gurr Rd	2009	2010, 2011	2010, 2011
Highline Canal @ Hwy 99	2009	2010, 2011	2010, 2011

MP – Management practice

WQ – Water Quality

Since the Coalition began focused outreach, growers within the in the first and second priority subwatersheds implemented new management practices designed to address agricultural induced water quality impairments. Because subwatersheds within the Coalition region may be unique in both water quality impairments and causes of the impairments, the number and type of practices recommended to members may vary from subwatershed to subwatershed. Across the seven first and second high priority subwatersheds, 35 members implemented 47 new management practices between 2009 and 2011 (Table 35). Table 36 lists the number of acres associated with newly implemented management practices in the first and second priority subwatersheds. Management practices within Pest Management / Dormant Spray Management category that focus on spray drift were implemented to the most acres in the seven subwatersheds (Table 36).

Table 35. Count of targeted growers implementing new management practices in first and second priority subwatersheds.

SUBWATERSHED	NUMBER OF GROWERS IMPLEMENTING:			# NEW MPs IMPLEMENTED	NUMBER OF GROWERS:			% TARGETED GROWERS IMPLEMENTING NEW MPs
	1 NEW MP	2 NEW MPs	3 NEW MPs		RECOMMENDED MPs	IMPLEMENTING NEW MPs	TARGETED (FOLLOW UP)	
FIRST PRIORITY SUBWATERSHEDS								
Dry Creek @ Wellsford Rd	7	1	0	9	4	8	22	36%
Duck Slough @ Hwy 99	3	3	1	12	8	7	20	35%
Prairie Flower Drain @ Crows Landing	2	1	1	7	4	5	10	50%
1 ST PRIORITY TOTAL	12	5	2	28	16	20	52	38%
SECOND PRIORITY SUBWATERSHEDS								
Bear Creek @ Kibby Rd	2	1	0	4	7	3	14	21%
Cottonwood Creek @ Rd 20	5	1	0	7	3	6	24	25%
Duck Slough @ Gurr Rd	2	0	0	2	3	2	6	33%
Highline Canal @ Hwy 99	2	2	0	6	2	4	8	50%
2 ND PRIORITY TOTAL	11	4	0	19	15	15	52	29%
1 ST AND 2 ND PRIORITY TOTAL	23	9	2	47	31	35	104	34%

MP – Management practice

Table 36. First and second priority subwatershed acreage with newly implemented management practices.

MANAGEMENT PRACTICE CATEGORY	MANAGEMENT PRACTICES	1ST PRIORITY SUBWATERSHEDS			2ND PRIORITY SUBWATERSHEDS				SUM OF ACREAGE WITH MANAGEMENT PRACTICE ²	% TARGETED ACRES
		DRY CREEK @ WELLSFORD RD	DUCK SLOUGH @ HWY 99	PRAIRIE FLOWER DRAIN @ CROWS LANDING RD	BEAR CREEK @ KIBBY RD	COTTONWOOD CREEK @ RD 20	DUCK SLOUGH @ GURR RD	HIGHLINE CANAL @ HWY 99		
	TARGETED ACREAGE	6,392	4,016	865	1,292	5,768	2,656	368		
Pest Management / Dormant Spray Management	Shut off outside nozzles when spraying outer rows next to sensitive sites	524	646				622		1,792	8%
	Spray areas close to waterbodies when the wind is blowing away from them					1,107	91	25	1,223	6%
	Use air blast applications when wind is 3-10 mph and upwind of sensitive sites							25	25	<1%
	Use electronic controlled sprayer nozzles					375			375	2%
	Use nozzles that provide largest effective droplet size to minimize drift							121	121	1%
Irrigation Water Management	Microirrigation system		279		207				486	2%
	Reduce amount of water used in surface irrigation	162	764	271	404	427		197	2,225	10%
	Use Polyacrylamide (PAM)			150					150	1%
Irrigation Water Management / Storm Drainage / Erosion & Sediment Management	Drainage Basins (Sediment Ponds)	121		150					271	1%
	Filter strips at least 10' wide around field perimeter	28				8			36	<1%
	Grass row centers	107							107	1%
	Install device to control amount/timing of discharge to waterway		1,148	512					1,660	8%
	Recirculation - Tailwater return system	443							443	2%
	Other (Not specified) ¹	3,651	451						4,102	19%

¹If growers implemented management practices other than those asked about during Coalition follow-up, they were instructed to indicate so and provide a summary/explanation.

Starting in 2009, the Coalition began monitoring for the effectiveness of newly implemented management practices (Table 34). High priority management plan constituents monitored for management practice effectiveness include chlorpyrifos, copper, diazinon, diuron (added in 2010), *C. dubia* water column toxicity, *S. capricornutum* water column toxicity and *H. azteca* sediment toxicity. Overall, the number of exceedances for these priority constituents decreased since 2009 (Figure 41, Tables 37 and 38). The number of samples collected for these constituents across the first and second high priority subwatersheds varied from year to year due to changes in MPM schedules and rotating of Assessment and Core Monitoring constituents. Tables 37 and 38 include both the number of exceedances per year from 2006 through 2011 and the ratio of the number of exceedances relative to the number of samples collected (as a percentage) for the first and second high priority subwatersheds.

Figure 41. Counts of high priority exceedances and toxicities from 2006 through 2011 in first and second priority subwatersheds.

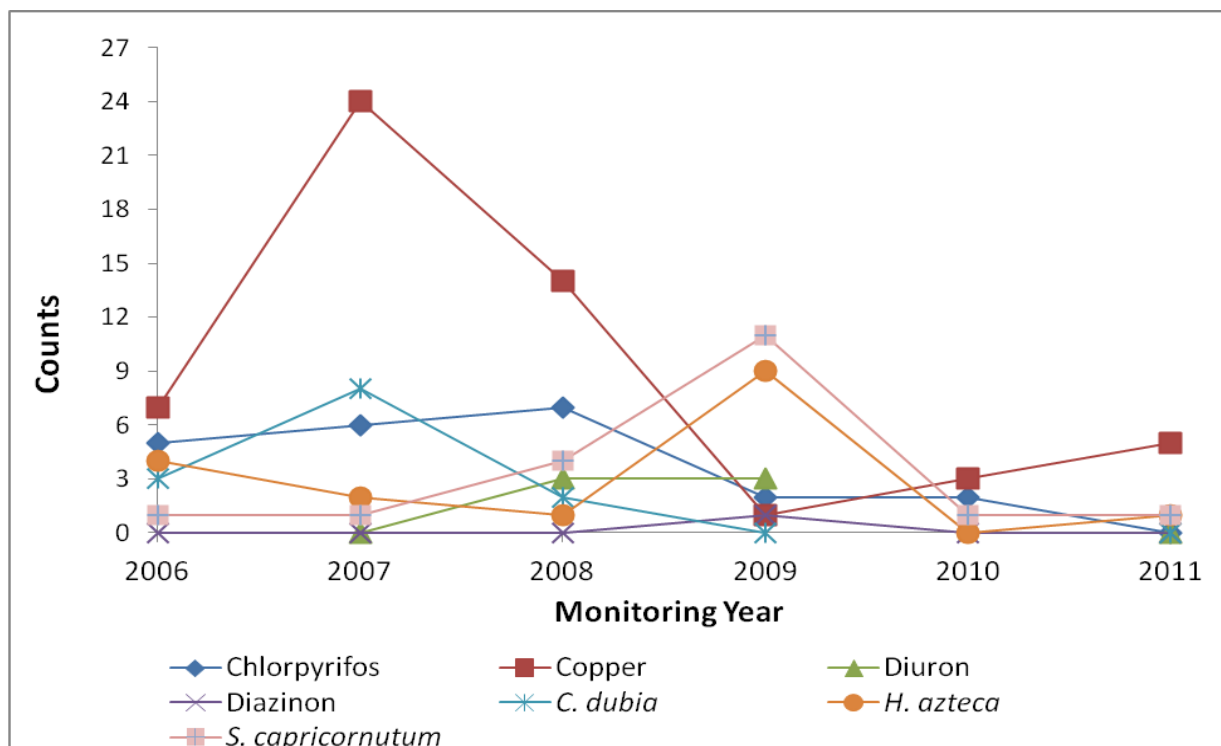


Table 37. Count of exceedances and samples collected for high priority pesticides in first and second priority subwatersheds.

YEAR	CHLORPYRIFOS				COPPER ¹				DIAZINON				DIURON			
	EXCEEDANCE	SAMPLES ²	% EXCEEDANCE	LBS APPLIED	EXCEEDANCE	SAMPLES ²	% EXCEEDANCE	LBS APPLIED	EXCEEDANCE	SAMPLES ²	% EXCEEDANCE	LBS APPLIED	EXCEEDANCE	SAMPLES ²	% EXCEEDANCE	LBS APPLIED
2006	5	49	10%	39,184	7	35	20%	154,565	0	49	0%	1,703	0	35	0%	7,046
2007	6	60	10%	31,397	24	62	39%	107,663	0	57	0%	1,361	3	54	6%	5,884
2008	7	61	11%	18,234	14	62	23%	74,434	1	58	2%	966	3	57	5%	3,682
2009	2	12	17%	18,767	1	9	11%	83,207	0	5	0%	510	NA	NA	NA	3,868
2010	2	17	12%	22,064	3	24	13%	116,078	0	2	0%	404	0	5	0%	4,039
2011	0	65	0%	7,029 ³	5	69	7%	92,149 ³	0	60	0%	239 ³	0	60	0%	3,650 ³

¹Since October 2008, the Coalition analyzes for both the total and dissolved fraction of copper in every event. For counting exceedances and samples scheduled for copper analysis, this table ignores fraction (e.g. if site A is scheduled for copper total and copper dissolved analysis in Event 1, the table counts only one sample for copper). No single sample collected from one site during one event has ever exceeded both the total and dissolved copper WQTLs.

²Refers to all samples scheduled for constituent analysis (dry sites are included).

³PUR data only available through June 2011 for Madera County, October 2011 for Merced County, and November 2011 for Stanislaus County.

NA – Not applicable, no samples were collected for the constituent during the year.

Table 38. Count of toxicities and samples collected for high priority toxic analysis in first and second priority subwatersheds.

YEAR	<i>C. DUBIA</i> TOXICITY			<i>S. CAPRICORNUTUM</i> TOXICITY			<i>H. AZTECA</i> TOXICITY		
	TOXICITIES	SAMPLES ¹	% TOXIC	TOXICITIES	SAMPLES ¹	% TOXIC	TOXICITIES	SAMPLES ¹	% TOXIC
2006	8	49	16%	1	49	2%	2	14	14%
2007	2	58	3%	4	56	7%	1	14	7%
2008	0	61	0%	11	57	19%	9	14	64%
2009	NA	NA	NA	1	5	20%	0	1	0%
2010	0	3	0%	1	13	8%	1	5	20%
2011	1	62	2%	3	62	5%	2	10	20%

¹Samples refers to all samples scheduled for constituent analysis (dry sites are included). Resampling events are not scheduled monitoring events and are not included.

NA – Not applicable, no samples were collected for the constituent during the year.

Chlorpyrifos

Chlorpyrifos is a high priority constituent for all first and second priority subwatersheds. As stated in previous sections, the Coalition discussed with growers the importance of irrigation and storm water management as well as encouraged management practices to reduce spray drift. Prior to 2009, the number of chlorpyrifos exceedances in first and second priority subwatersheds ranged from 5 to 7 samples representing 10 – 11% of the samples analyzed (Table 37). In 2009 and 2010, the number of exceedances was reduced to two in each year and there were no exceedances of the chlorpyrifos WQTL in 2011 (Table 37). Preliminary PUR data indicate that less chlorpyrifos was applied to the subwatershed in 2011 compared to previous years (2011 PUR data not available for all months, Table 37). The Coalition petitioned to remove chlorpyrifos from the Duck Slough @ Hwy 99, Bear Creek @ Kibby Rd, Duck Slough @ Gurr Rd, Highline Canal @ Hwy 99 and Prairie Flower Drain @ Crows Landing Rd management plans as a result of improved water quality.

Copper

Copper is included in a management plan for all the first and second priority subwatersheds except Prairie Flower Drain @ Crows Landing Rd. While the amount of copper applied remains high; the percentage of copper exceedances was less in 2011 (7%) compared to 2010 in first and second priority subwatersheds (13%, Table 37). Before outreach began in 2008, copper exceedances occurred in 23% of the samples collected compared to 7% of samples in 2011 (Table 37). Copper exceedances that occurred in 2010 and 2011 occurred in samples collected from Cottonwood Creek; all other first and second high priority subwatersheds had no copper WQTL exceedances.

Growers within all subwatersheds implemented additional management practices designed to prevent the offsite movement of copper including management of spray drift and irrigation/storm runoff (Table 36). Sources of copper in ESJWQC waterways include natural sources and anthropogenic sources including applications by growers and applications by water districts. Only one source of copper is under the control of Coalition members (discharges from irrigated agriculture). Management practices implemented by growers can be effective and still not eliminate exceedances of the WQTL. The Coalition petitioned to remove copper from the Dry Creek @ Wellsford and Highline Canal @ Hwy 99 site subwatershed management plans due to improved water quality. The Coalition will continue to monitor for copper in Duck Slough, Bear Creek and Cottonwood Creek to assess water quality improvements and obtain two full years of monitoring with no copper WQTL exceedances.

Diazinon

Cottonwood Creek @ Rd 20 is the only subwatershed with diazinon in its management plan; only one exceedance occurred in 2008. Because diazinon is a US EPA approved TMDL constituent, a single exceedance requires a management plan. During individual contacts, the Coalition encouraged orchard operators to implement management practices during the dormant spray/storm season. The Coalition believes these practices, along with declining diazinon applications, have been effective in reducing diazinon water quality impairments. No exceedances of diazinon have occurred since 2008 (Table 37). Therefore, the Coalition petitioned to remove diazinon from the Cottonwood Creek management plan since monitoring has demonstrated more than two consecutive years of no exceedances.

Diuron

Dry Creek @ Wellsford Rd, Cottonwood Creek @ Rd 20 and Highline Canal @ Hwy 99 include diuron in their management plans. Between 2007 and 2008, there were six exceedances of the diuron WQTL; all exceedances occurred in samples collected during a storm event in either January or February (Table 37). The Coalition discussed the importance of preventing offsite movement of dormant spray pesticides and herbicides, such as diuron, during individual grower meetings. Growers in the three subwatersheds implemented several management practices designed to address storm water runoff and dormant spray applications (e.g. maintaining filter strips at least 10 feet wide, spray areas close to waterbodies when the wind is blowing away from them, etc., Table 36). The Coalition believes these management practices are effective in reducing diuron discharges. There were no exceedances of the diuron WQTL during 2010 MPM or 2011 Assessment Monitoring in any of the three subwatersheds (Table 37). Therefore, the Coalition petitioned to remove diuron from the Dry Creek @ Wellsford Rd, Cottonwood Creek @ Rd 20 and Highline Canal @ Hwy 99 management plans due to two consecutive years of monitoring with no exceedances of diuron.

C. dubia toxicity

Management plans were implemented for *C. dubia* toxicity in the Prairie Flower Drain @ Crows Landing Rd, Bear Creek @ Kibby Rd, Duck Slough @ Gurr Rd and Highline Canal @ Hwy 99 subwatersheds. Across the ESJWQC region, water toxicity to *C. dubia* is often caused, either partially or entirely, by organophosphates in surface waterways. The Coalition's strategy for *C. dubia* toxicity is to focus on chlorpyrifos and diazinon water quality impairments to address the toxicity. Since focused outreach began in 2009, there has been only one *C. dubia* toxicity in first and second priority subwatersheds (Table 38). The single *C. dubia* toxicity occurred in 2011 in samples collected from Prairie Flower Drain @ Crows Landing Rd and coincided with exceedances of carbaryl (five times the WQTL) and dimethoate (10 times the WQTL). The Toxicity Identification Evaluation (TIE) indicated pyrethroids were the cause of toxicity. The Coalition identified the PCA and grower responsible for the carbaryl application that resulted in the exceedance, discussed water quality concerns and applicable management practices, and is working with this member to obtain funds for a tailwater/recirculation system. The Coalition emphasizes during general and focused outreach that all pesticides carry risks for water quality and preventing the offsite movement of all pesticides, via storm water, irrigation tailwater, and/or sediment, is the most effective method to reduce agriculturally induced water quality impairments.

The Coalition believes its strategy of focusing on chlorpyrifos and diazinon is effective in reducing *C. dubia* toxicities. Samples collected from Bear Creek @ Kibby Rd, Duck Slough @ Gurr Rd, and Highline Canal @ Hwy 99 have not been toxic to *C. dubia* since focused outreach began and therefore the Coalition petitioned to remove *C. dubia* toxicity from the Bear Creek @ Kibby Rd management plan. The Coalition recognizes it will need to continue to inform growers of the risks of switching to alternative pesticides and continues to do so during both general and focused outreach efforts. During 2012, MPM for *C. dubia* toxicity will occur in the Prairie Flower Drain @ Crows Landing Rd, Bear Creek @ Kibby Rd, Duck Slough @ Gurr Rd, and Highline Canal @ Hwy 99 subwatersheds.

***S. capricornutum* toxicity**

Management plans were implemented for *S. capricornutum* toxicity in the Dry Creek @Wellsford Rd, Duck Slough @ Hwy 99, Prairie Flower Drain @ Crows Landing Rd, Duck Slough @ Gurr Rd, and Highline Canal @ Hwy 99 subwatersheds. Since focused outreach began in 2009, *S. capricornutum* toxicity occurred in samples collected from the Prairie Flower Drain @ Crows Landing Rd subwatershed once in 2009, once in 2010, and three times in 2011 (Table 38). All other first and second high priority subwatersheds have not had any samples toxic to *S. capricornutum* since 2009. Potential sources of past toxicity include metals, ammonia and applied herbicides. Prairie Flower Drain contains both agricultural and dairy parcels that discharge to the drain. Management practices implemented by members within the Prairie Flower subwatershed may be effective and still not eliminate all exceedances. The Coalition will continue to monitor for *S. capricornutum* toxicity at Prairie Flower Drain during months of past exceedances and when the site rotates into Assessment Monitoring. The Coalition will conduct MPM in 2012 for *S. capricornutum* toxicity in Dry Creek @Wellsford Rd, Duck Slough @ Hwy 99, Duck Slough @ Gurr Rd, and Highline Canal @ Hwy 99 in order to demonstrate two consecutive years of monitoring with no toxicities. The Coalition petitioned to remove *S. capricornutum* toxicity from the Dry Creek @Wellsford Rd, Duck Slough @ Hwy 99 and Duck Slough @ Gurr Rd subwatersheds management plans.

***H. azteca* toxicity**

Management plans were implemented for *H. azteca* toxicity (sediment toxicity) in the Dry Creek @ Wellsford Rd, Prairie Flower Drain @ Crows Landing Rd, Duck Slough @ Gurr Rd, and Highline Canal @ Hwy 99 subwatersheds. The Coalition discussed management practices to address sediment toxicity during its focused outreach to growers in the first and second priority subwatersheds. Since focused outreach began in 2009, *H. azteca* toxicity has not occurred in the Prairie Flower Drain @ Crows Landing Rd and Highline Canal @ Hwy 99 subwatersheds. However, *H. azteca* toxicity occurred once in the Dry Creek @ Wellsford Rd (September 2011) and twice in the Duck Slough @ Gurr Rd subwatershed (September 2010 and September 2011; Table 38). Pesticide Use Reports indicate both chlorpyrifos and various pyrethroids were applied prior to all three exceedances. The Coalition believes the management practices it recommends to reduce the offsite movement of storm water, irrigation tailwater, and/or sediment are effective given that, overall, there is a reduction in the percentage of *H. azteca* toxicities in 2011 compared to the percentage of toxicities in 2008 in the first and second priority subwatersheds (Table 38). Nevertheless, growers need to take further steps to eliminate all sediment toxicity, and the Coalition will continue MPM for *H. azteca* toxicity at the four sites in 2012 to assess changes in water quality.

COALITION WIDE EVALUATION

Monitoring results from recent years indicate that water quality is improved in several ESJWQC high priority management plan subwatersheds. The Coalition submitted a letter to the Regional Board on January 6, 2012 petitioning to remove constituents from the management plan of 10 high priority subwatersheds. Monitoring results from these sites demonstrate no exceedances of the particular constituents during two or more consecutive years of monitoring in months of past exceedances. The high priority sites (listed in order of priority year) and constituents being petitioned to remove are Dry Creek @ Wellsford Rd (copper, diuron, specific conductance (SC) and *S. capricornutum* toxicity), Duck Slough @ Hwy 99 (chlorpyrifos, dissolved oxygen (DO) and *S. capricornutum* toxicity), Prairie Flower Drain @ Crows Landing Rd (chlorpyrifos and pH), Bear Creek @ Kibby Rd (chlorpyrifos and DO), Cottonwood Creek @ Rd 20 (diazinon and diuron), Duck Slough @ Gurr Rd (chlorpyrifos, SC, *S. capricornutum* toxicity and total dissolved solids (TDS)), Highline Canal @ Hwy 99 (ammonia, chlorpyrifos, copper, diuron, pH, SC and TDS), Lateral 2 ½, near Keyes Rd (*E. coli*), Deadman Creek @ Gurr Rd (copper), and Hilmar Drain @ Central Ave (chlorpyrifos). Until the request is approved, the constituents will continue to be monitored as scheduled.

Since 2004, the Coalition has had water quality impairments with chlorpyrifos detections and exceedances within its boundaries. The Coalition focused on chlorpyrifos impairments during general outreach (since 2007) and focused outreach to high priority subwatersheds (since 2008). Since the implementation of the Coalition's Management Plan in 2008, there is an overall decrease in the number and percentage of chlorpyrifos exceedances across the entire ESJWQC region (Table 39 and Figure 42). During 2011, the Coalition conducted Assessment Monitoring at 11 sites and MPM at 12 sites; six of the 11 Assessment Monitoring sites also received MPM, therefore 17 sites (excluding Lateral 3 along East Taylor Rd which was approved to be removed from the ESJWQC MRPP on February 7, 2012) were monitored in 2011 (Table 2 and Figure 43). Seven of the site subwatersheds sampled in 2011 received focused outreach to address management plan constituents while the Coalition has either not started or only just initiated this process in the other 10 site subwatersheds monitored in 2011. The Coalition believes that general and focused outreach regarding water quality results and management practices resulted in decreased chlorpyrifos exceedances in both high priority subwatersheds and new Assessment Monitoring locations.

Table 39. Count of exceedances and samples collected for chlorpyrifos across the ESJWQC region.

YEAR	EXCEEDANCE COUNT	SAMPLES ¹	% EXCEEDANCE	LBS APPLIED ²
2006	17	115	15%	221,111
2007	19	186	10%	168,482
2008	27	244	11%	132,342
2009	5	101	5%	157,503
2010	9	93	10%	129,277
2011	3	147	2%	69,580

¹ Samples refers to all samples collected for constituent analysis (dry sites not included).

² PUR data only available through June 2011 for Madera County, October 2011 for Merced County, and November 2011 Stanislaus County.

Figure 42. Percentage of chlorpyrifos exceedances from all 2006 -2011 monitoring events (Assessment Monitoring and MPM) in ESJWQC Zones 1-6.

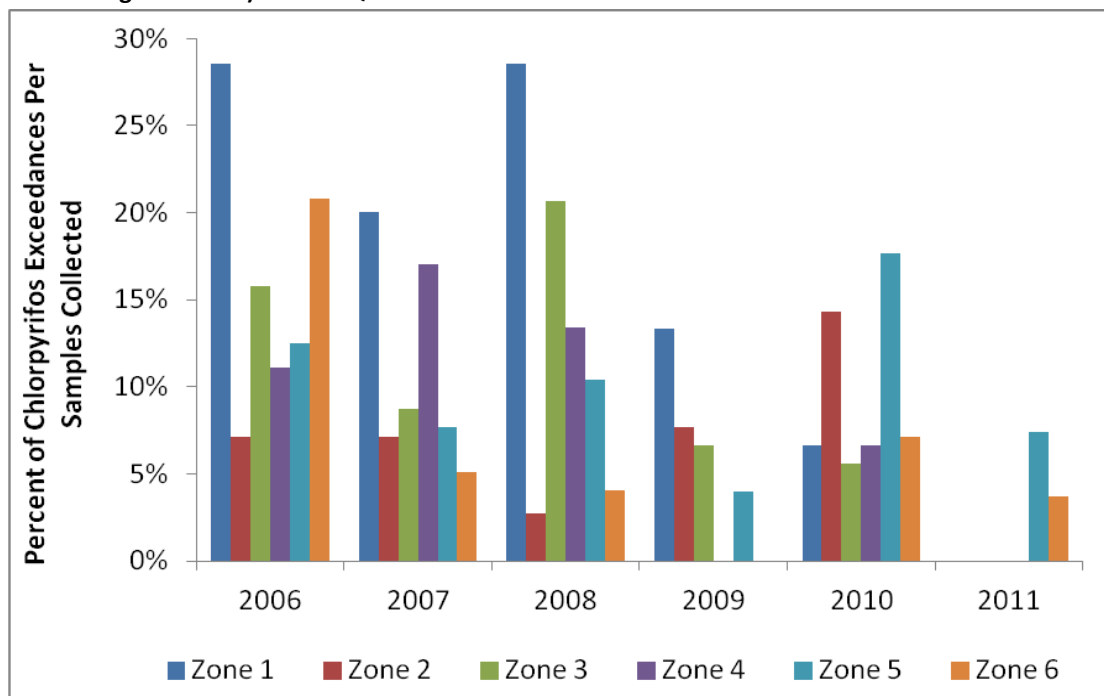
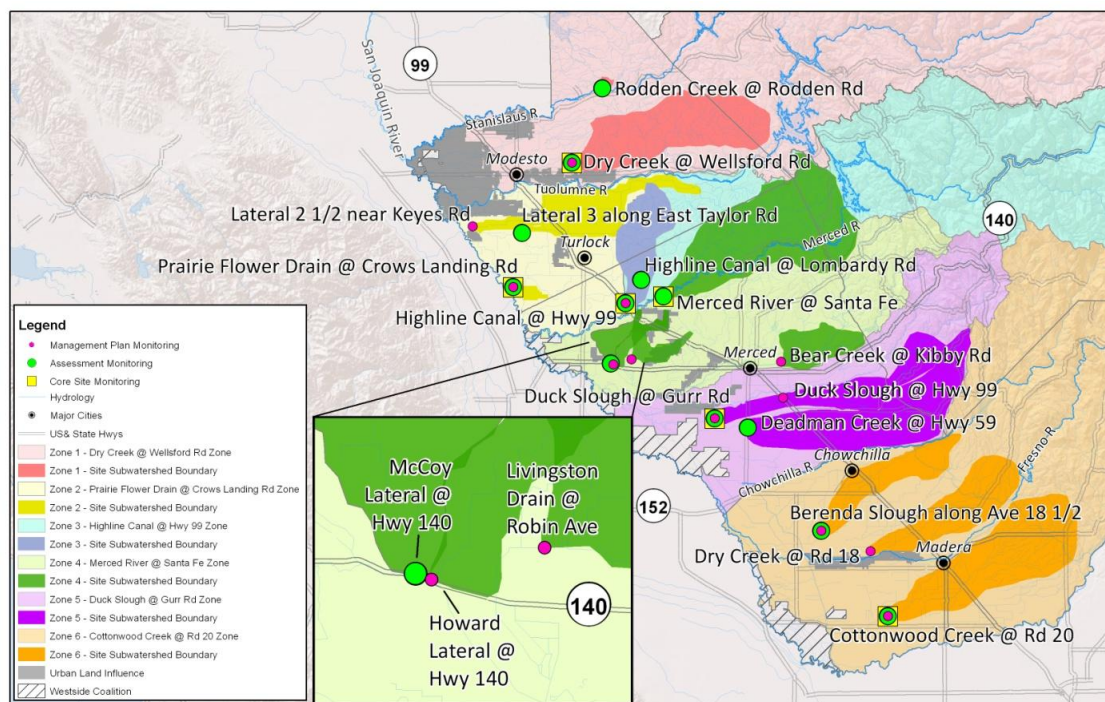


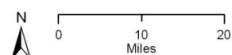
Figure 43. ESJWQC January through December 2011 sample locations and zone boundaries.



Source of Layers:
 Hydrology - NHD hydrodata, 1:24,000-scale, <http://nhd.usgs.gov/>
 Roads, highways, railroads, county boundary, city outlines - California Spatial Information Library
 TRS - Teale Public Land Survey System, Pub. date, 2000/10/1, California Spatial Information Library
 Parcel Layer - Stanislaus 2010, Merced 2011, Madera 2011
 Basemap, Shaded Relief - ESRI
 GSC North America 1993

Date Prepared: 01/11/12
 ESJWQC

ESJWQC January - December 2011 Monitoring Sites Zone Boundaries & Urban Land Influence



ESJWQC_2011_amr

In addition to the Coalition’s focused outreach strategy, the Coalition believes growers across the ESJWQC region are taking additional actions to prevent water quality impairments caused by agricultural. The Coalition reviewed funding data from the various organizations managing the distribution of financial support to growers for the implementation of management practices. These organizations include the Coalition for Urban/Rural Environmental Stewardship (CURES), which is managing the distribution of Prop 84 funds and the associated cost share program, and the AWEP and EQIP funding cost share programs, which are managed by the Natural Resource Conservation Service (NRCS) office of each county within the ESJWQC region (Stanislaus, Merced, and Madera). The AWEP funds are specific to agriculture and a group must apply for the funds before they are made available. On July 30, 2009, AWEP funding of \$10 million was awarded to the ESJWQC, CURES, the Westside San Joaquin River Watershed Coalition, the West and East Stanislaus Resource Conservation District and NRCS and is currently being distributed through the county NRCS offices. Funds were made available to support management practice implementation on farms and dairies with operations bordering waterways within subwatersheds covered by management plans in Stanislaus and Merced counties. On the other hand, EQIP funds are regularly allocated to counties from the federal government for any projects focused on implementing management practices designed to protect and/or improve the quality of surface water, groundwater, soil, and/or air.

Data obtained from CURES regarding Prop 84 funding indicate there were six contracts awarded in 2011 worth \$281,853 (Prop 84 funding is a 50% cost share program, therefore the total cost of the management practices is twice the amount listed, Table 40). The Prop 84 funds focus on irrigation management, and awards thus far have been for microirrigation and tailwater return systems (Table 40). Prop 84 funds awarded in 2011 are associated with 1,256 acres in Merced County within the ESJWQC region (Table 40).

Table 40. Prop 84 funding contracts awarded, contract dollars and contract acres Merced County.

Data provided to the Coalition are considered preliminary.

COUNTY	FUNDING YEAR	PROGRAM	PRACTICE NAME	TOTAL NUMBER OF CONTRACTS AWARDED	TOTAL CONTRACT DOLLARS ¹	TOTAL CONTRACT ACREAGE
Merced	2011	Prop 84	Microirrigation	2	\$159,512	156
			Tailwater Return System	4 ²	\$122,341 ²	1,109 ²
			Total	6	\$281,853	1,265

¹ Prop 84 funding is a 50% cost share program, therefore the total cost of the management practices is twice the amount listed.

² After awards were approved, two growers have since declined Prop 84 funding. The other two growers have yet to start implementing the management practice.

The NRCS offices for the three counties in the ESJWQC region award 100% of their appropriated AWEP and EQIP monies and always have more applications than available funds to be awarded. Table 41 summarizes total contract acreage associated with EQIP and AWEP funded management practices designed to address surface water impairments from irrigated agriculture from 2009 through 2011. Of the management practices funded by AWEP and EQIP in the subwatersheds monitored by the Coalition in 2011, microirrigation/drip irrigation systems were associated with the most acreage (1,699 acres),

followed by low pressure pipelines (1,350 acres) and water/sediment control basins (793 acres, Table 41).

The practices funded by Prop 84, AWEF and EQIP programs to date include several of the practices recommended by the Coalition during focused outreach. These data indicate targeted growers have options for financial resources to aid in implementing recommended practices.

In addition, the Prop 84, AWEF, and EQIP funding information indicate that growers are implementing management practices to prevent the offsite movement of agricultural constituents to adjacent waterways in both high priority subwatersheds and subwatersheds that have not yet rotated into high priority status (e.g. Merced River, Howard Lateral, etc., Table 41). The data demonstrate that growers beyond those farming in the high priority subwatersheds are taking actions to address agriculturally induced water quality impairments in the ESJWQC region.

Table 41. Acres associated with management practices awarded AWEP and EQIP funding in subwatersheds sampled by the ESJWQC during 2011.

Data provided to the Coalition are considered preliminary since counties may still be updating funding award records.

COUNTY	SUBWATERSHED (HIGH PRIORITY MP YEARS)	FUNDING YEAR	PROGRAM	IRRIGATION WATER MGMT	LASER LEVELING	MICRO/ DRIP IRRIGATION SYSTEM	SPRINKLER SYSTEM	NUTRIENT MGMT	PIPELINE		UNDER GROUND OUTLET	RECIRCULATION/ TAILWATER RETURN SYSTEM	WATER AND SEDIMENT CONTROL BASIN
									CONCRETE	LOW PRESSURE			
Stanislaus	Dry Creek @ Wellsford Rd (2008-2010)	2009	AWEP		97					97			
		2010	AWEP			37		548		793			793
			EQIP			95							
	2011	AWEP			196								
	Prairie Flower Drain @ Crows Landing Rd (2008-2010)	2009	AWEP							260	260	260	
			EQIP				327						
Merced	Duck Slough @ Hwy 99 (2008- 2010)	2009	AWEP			90							
		2010	AWEP			96							
			EQIP			99							
	Bear Creek @ Kibby Rd (2010- 2012)	2009	EQIP									27	
		2010	EQIP			81						28	
	Duck Slough @ Gurr Rd (2010- 2012)	2009	AWEP							86		62	
	Highline Canal @ Lombardy Rd & Hwy 99 (2010-2012)	2009	EQIP			16		40					
	Livingston Drain @ Robin Ave (2011-2013)	2009	EQIP			81							
		2010	EQIP			157	17						
	Deadman Creek @ Hwy 59 (2012-2014)	2009	EQIP							87		95	
		2010	EQIP			280							
	Merced River @ Santa Fe (2013-2015)	2009	EQIP			150							
	Howard Lateral @ Hwy 140 (2015-2017)	2009	EQIP			57							
	McCoy Lateral @ Hwy 140 (2016-2018)	2010	EQIP							27			
	Madera	Cotton Wood Creek @ Rd 20 (2010-2012)	2009	EQIP	119				35				
2010			AWEP			30							
			EQIP			109							
2011		AWEP			37								
Dry Creek @ Rd 18 (2011-2013)		2009	EQIP			15							
		2010	EQIP			75							
Total Acres				119	97	1,699	17	624	327	1,350	260	473	793

Conclusions:

- Subwatersheds that have high priority status and have had individual grower visits have seen a reduction in exceedances,
- The drop in exceedances coincides with implementation of management practices encouraged by the Coalition,
- Subwatersheds with high numbers of exceedances of pesticides either have not completed or started focused outreach,
- Agriculture may not be the only cause of copper water quality impairments in Coalition Zone 6,
- Growers in the ESJWQC region are taking advantage of available funding resources to be used to implement management practices that improve water quality,
- Growers across the ESJWQC region are implementing management practices, and
- After demonstrating two or more consecutive years of monitoring without exceedances, the Coalition has been able to petition to the Regional Board to remove certain constituents from active management plans from 10 high priority subwatersheds including all of the first and second priority subwatersheds.

STATUS OF TMDL CONSTITUENTS

The ESJWQC established monitoring and management activities as required in the Regional Board's Basin Plan for the Sacramento and San Joaquin River basins. The Basin Plan establishes Total Maximum Daily Load (TMDL) requirements for dischargers and requires that dischargers comply with the monitoring and management criteria defined in the Basin Plan. A narrative concerning each special monitoring constituent is documented below as an effort by the Coalition to describe how it is meeting the TMDL requirements for Coalition members.

If an exceedance occurs for a TMDL constituent, a management plan is required for that constituent in that site subwatershed regardless of whether there was a second exceedance. A management plan for a TMDL constituent results in additional focused monitoring, sourcing, and outreach within subwatersheds. Coalition efforts include but are not limited to: 1) Management Plan Monitoring, 2) conducting site subwatershed grower meetings, 3) encouraging the adoption of and evaluating the efficacy of management practices, and 4) addressing the seven surveillance and monitoring objectives described in the Basin Plan, where applicable. The Coalition addresses toxicity, pesticides, and sediment bound analytes with specific management practices whether or not there is a TMDL.

Intensive outreach and documentation of implemented management practices occur throughout the Coalition, but greater efforts to acquire this information are made in locations that the Coalition has designated as high priority subwatersheds (Table 6). Furthermore, the Coalition conducts annual meetings to provide growers with information on management practices that improve water quality.

CHLORPYRIFOS AND DIAZINON TMDL

The San Joaquin River chlorpyrifos and diazinon TMDL was adopted by the Regional Board in June 23, 2006 and documented in an amendment to the Basin Plan (*Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River*). The TMDL was approved by the United States Environmental Protection Agency (USEPA) on October 10, 2007. Dischargers had until December 31, 2010 to be compliant with the water quality objectives (WQOs) and loading capacity in the San Joaquin River and load allocations to the river for diazinon and chlorpyrifos.

The ESJWQC and Westside Coalition submitted the San Joaquin River Chlorpyrifos and Diazinon 2010 AMR on October 31, 2010, which summarized the first year of San Joaquin River chlorpyrifos and diazinon TMDL monitoring (January through September 2010).

The 2011 monitoring design closely followed the monitoring design utilized in 2010. The memorandum submitted to the Regional Board on May 14, 2010 outlined the approach to implement the monitoring component for the San Joaquin River Chlorpyrifos and Diazinon TMDL, which includes monitoring of

chlorpyrifos and diazinon in the San Joaquin River at six compliance points on a quarterly basis, tributary monitoring based on each Coalitions approved monitoring plan on a monthly basis, and an assessment of the monitoring objectives and results on an annual basis. The Coalitions submitted a memorandum to the Regional Board on April 29, 2011 that indicated that monthly monitoring by the Westside Coalition of three of the six compliance points (SJR @ Sack Dam, SJR @ Lander Ave, and SJR @ Las Palmas Ave (Patterson)) will be included in the TMDL compliance point monitoring ; the remaining three compliance points would be monitored quarterly.

The Coalitions and Regional Board agreed to move the chlorpyrifos and diazinon AMR due date from October 31 to May 1 reporting on the previous water year's monitoring results (refer to memorandum submitted April 29, 2011). The San Joaquin River Chlorpyrifos and Diazinon 2012 AMR will be submitted on May 1, 2012 and will include a complete analysis and discussion of all monitoring data collected during October 2010 through September 2011.

SALT AND BORON TMDL

The Regional Board and stakeholders initiated the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) in July 2008 to facilitate efforts needed for the efficient management of salinity in the Central Valley. The Regional Board and State Water Board initiated this comprehensive effort to address salinity concerns in California's Central Valley and adopt long-term solutions that will lead to improved water quality and economic sustainability with the goal of developing a Salt and Boron Basin Plan Amendment. Coalition representatives attend CV-SALTS meetings and participate in planning and reviewing studies relevant to the development of a Basin Plan amendment for salt and boron (Table 42). Coalition technical consultants participated in several CV-SALTS committees including the Technical Advisory Committee, the Knowledge Gained and BMP Subcommittees (Table 42). In addition, the Coalition monitors for salt (SC, TDS and nitrates) and boron in every zone and includes these constituents in conversations with growers about water quality impairments and applicable management practices (Table 43).

Table 42. Coalition representatives and MLJ-LLC attendance to CV-SALTS meetings during 2011.

ORGANIZATION	MEETING DATE	COALITION REPRESENTATIVE IN ATTENDANCE	MEETING TITLE
CV-SALTS	20-Jan-11	PK	Executive Committee Meeting
CV-SALTS	10-Feb-11	PK	Executive Committee Meeting
CV-SALTS	17-Mar-11	PK	Executive Committee Meeting
CV-SALTS	6-Apr-11	MJ, MT	Knowledge Gained Committee
CV-SALTS	6-Apr-11	PK	Economic and Technical Advisory Committee Meeting
CV-SALTS	8-Apr-11	PK	BMP Subcommittee Meeting
CV-SALTS	12-Apr-11	PK	Executive Committee Meeting
CV-SALTS	22-Apr-11	PK	Executive Committee Meeting
CV-SALTS	2-May-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	12-May-11	PK	Executive Committee Meeting
CV-SALTS	24-May-11	PK, MJ	Executive Committee Meeting
CV-SALTS	25-May-11	PK, MJ	BMP Subcommittee Meeting

ORGANIZATION	MEETING DATE	COALITION REPRESENTATIVE IN ATTENDANCE	MEETING TITLE
CV-SALTS	25-May-11	MJ	Knowledge Gained Committee
CV-SALTS	13-Jun-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	16-Jun-11	PK	Executive Committee Meeting
CV-SALTS	23-Jun-11	PK, MJ	Executive Committee Meeting
CV-SALTS	27-Jun-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	20-Jul-11	MJ	Knowledge Gained Committee
CV-SALTS	21-Jul-11	PK	Executive Committee Meeting
CV-SALTS	9-Aug-11	PK	Executive Committee Meeting
CV-SALTS	18-Aug-11	PK	Executive Committee Meeting
CV-SALTS	22-Aug-11	PK	BMP Subcommittee Meeting
CV-SALTS	12-Sep-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	13-Sep-11	PK	Executive Committee Meeting
CV-SALTS	15-Sep-11	PK	Executive Committee Meeting
CV-SALTS	17-Oct-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	19-Oct-11	PK	Executive Committee Meeting
CV-SALTS	19-Oct-11	MJ	Knowledge Gained Committee
CV-SALTS	20-Oct-11	PK	Executive Committee Meeting
CV-SALTS	15-Nov-11	PK	Executive Committee Meeting
CV-SALTS	17-Nov-11	PK	Executive Committee Meeting
CV-SALTS	21-Nov-11	PK, MJ	BMP Subcommittee Meeting
CV-SALTS	12-Dec-11	PK	Executive Committee Meeting

MJ – Michael Johnson, MJ-LLC

MT – Melissa Turner, MJ-LLC

PK – Parry Klassen, ESJWQC

Table 43. ESJWQC sites monitored for salt (specific conductance) and boron during January through December 2011.

ZONE	SITE NAME	SC	TDS	NITRATE +NITRITE	BORON (TOTAL)
Zone 1	Dry Creek @ Wellsford Rd	A	A	A	A
	Rodden Creek @ Rodden Rd	A	A	A	A
Zone 2	Lateral 2 1/2 near Keyes Rd	F			
	Prairie Flower Drain @ Crows Landing Rd	A	A	A	A
Zone 3	Highline Canal @ Hwy 99	A	A	A	A
	Highline Canal @ Lombardy Rd	A	A	A	A
Zone 4	Bear Creek @ Kibby Rd	F			
	Howard Lateral @ Hwy 140	F			
	Livingston Drain @ Robin Ave	F			
	McCoy Lateral @ Hwy 140	A	A	A	A
	Merced River @ Santa Fe	A	A	A	A
Zone 5	Deadman Creek @ Hwy 59	A	A	A	A
	Duck Slough @ Gurr Rd	A	A	A	A
	Duck Slough @ Hwy 99	F			
Zone 6	Berenda Slough along Ave 18 1/2	A	A	A	A
	Cottonwood Creek @ Rd 20	A	A	A	A
	Dry Creek @ Rd 18	F			

A - Assessment Monitoring (constituent was monitored at sites during 2011 Assessment Monitoring).

F - Field parameter data collected at sites scheduled for MPM.

Blank cells indicate that the site was not monitored for the particular constituent due to MPM only.

DISSOLVED OXYGEN

Low levels of DO in the Stockton Deep Water Ship Channel (DWSC) have been a concern for numerous years. To address the issue, the EPA approved on February 27, 2007 the *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel* (hereafter, DO Basin Plan Amendment). To demonstrate compliance with the DO TMDL, agriculturally-influenced tributaries to the San Joaquin River are routinely monitored, as described in the Coalition's MRPP (pages 33-58). The Coalition monitored monthly for DO in at least one representative site within each Coalition zone during 2011 (Table 44). The Coalition is addressing DO exceedances through the management plan process and includes discussions of DO water quality concerns during grower outreach. During 2011 monitoring, there were a total of 11 DO exceedances in five of the ESJWQC subwatersheds (Table 45).

In addition, the Coalition continues to follow developments in achieving DO WQOs in the Stockton DWSC. The Coalition participated in several DO TMDL Technical Working Group meetings during 2010 to discuss the progress of several studies and pilot programs (2011 MPUR, page 134, Table 41). These programs include the upper San Joaquin River DO project and the performance of the Aeration Facility, located at the west (downstream) end of Rough and Ready Island at the Port of Stockton. The *Stockton Deep Water Ship Channel Demonstration Dissolved Oxygen Aeration Facility Project Final Report* was released in December 2010 and indicates the Aeration Facility is a useful and effective tool to achieve the Basin Plan DO WQO in the Deep Water Ship Channel. The Coalition will continue to participate in meetings and review technical documents as they are made available.

Table 44. ESJWQC sites monitored for dissolved oxygen during January through December 2011.

ZONE	SITE NAME	DISSOLVED OXYGEN
Zone 1	Dry Creek @ Wellsford Rd	A
	Rodden Creek @ Rodden Rd	A
Zone 2	Lateral 2 1/2 near Keyes Rd	F
	Prairie Flower Drain @ Crows Landing Rd	A
Zone 3	Highline Canal @ Hwy 99	A
	Highline Canal @ Lombardy Rd	A
Zone 4	Bear Creek @ Kibby Rd	F
	Howard Lateral @ Hwy 140	F
	Livingston Drain @ Robin Ave	F
	McCoy Lateral @ Hwy 140	A
	Merced River @ Santa Fe	A
Zone 5	Deadman Creek @ Hwy 59	A
	Duck Slough @ Gurr Rd	A
	Duck Slough @ Hwy 99	F
Zone 6	Berenda Slough along Ave 18 1/2	A
	Cottonwood Creek @ Rd 20	A
	Dry Creek @ Rd 18	F

A - Assessment Monitoring (constituent was monitored at sites during 2011 Assessment Monitoring).

F - Field parameter data collected at sites scheduled for MPM.

Table 45. ESJWQC Exceedances of dissolved oxygen from January through December 2011.

Dissolved oxygen WQTL is listed below the constituent. Field parameters under a management plan are all classified as Priority E constituents and are monitored only as a part of Normal Monitoring (see Management Plan approved November 25, 2008, Prioritization of Exceedances section) or when a site is monitored for a high priority constituent in a management plan.

Station Name	Sample Date	Season	DO
			<7 MG/L
Prairie Flower Drain @ Crows Landing Rd	1/18/2011	Winter1	5.35
Duck Slough @ Gurr Rd	3/15/2011	Winter2	6.78
Berenda Slough along Ave 18 1/2	3/17/2011	Winter2-Sediment	6.72
Cottonwood Creek @ Rd 20	4/19/2011	Irrigation1	6.7
Prairie Flower Drain @ Crows Landing Rd	4/19/2011	Irrigation1	2.14
Dry Creek @ Wellsford Rd	6/14/2011	Irrigation3	6.36
Dry Creek @ Wellsford Rd	7/12/2011	Irrigation4	6.82
Dry Creek @ Wellsford Rd	8/9/2011	Irrigation5	6.52
Berenda Slough along Ave 18 1/2	10/11/2011	Fall1	5.69
Prairie Flower Drain @ Crows Landing Rd	10/11/2011	Fall1	6.59
Dry Creek @ Wellsford Rd	12/6/2011	Fall3	6.7
Non Contiguous Waterbody Exceedances			0
Total Exceedances			11

SITE SUBWATERSHED MANAGEMENT PLAN UPDATE

Brief descriptions of all site subwatersheds included the ESJWQC Management Plan as of April 1, 2012 are listed below. The descriptions include subwatersheds that are listed as current high priority subwatersheds and those that will reach high priority status in the future. Further analysis of high priority site subwatersheds (2008-2010, 2010-2012, 2011-2013 and 2012-2014) is included in Appendix I of this report.

Ash Slough @ Ave 21

The Ash Slough @ Ave 21 site subwatershed is a rotating Assessment Monitoring location within the Cottonwood Creek @ Rd 20 Zone (Zone 6). Monitoring occurred at the site from the 2005 irrigation season through 2010 (Assessment Monitoring from fall of 2008 through 2010). However, following the 2006 irrigation season, Ash Slough was dry during all events in 2007 through 2010 except two (May 2009 and April 2010). Assessment Monitoring is scheduled to occur again in 2015 and 2016.

Focused outreach and MPM will begin in the Ash Slough subwatershed in 2015 and management plan constituents include chlorpyrifos, copper, *E. coli*, and lead. Additional MPM for chlorpyrifos and copper was scheduled in 2007 and 2008; however, the site was dry during all sampling events. During the only two Assessment Monitoring events for which water was present since 2006 (May 2009 and April 2010), copper (dissolved) exceeded the WQTL during both events.

Initially, the Coalition scheduled Ash Slough to be a part of the third set of high priority management plan subwatersheds (focused outreach 2011-2013). However, because the slough was dry during the majority of Assessment Monitoring in 2008 through 2010, the Coalition received approval on November 17, 2010 to move Ash Slough to the seventh set of high priority subwatersheds (focused outreach 2015-2017).

Bear Creek @ Kibby Rd

The Bear Creek @ Kibby Rd site subwatershed is a rotating Assessment Monitoring location within the Merced River @ Santa Fe Zone (Zone 4). Sampling was initiated at Bear Creek @ Kibby Rd during the storm season of 2005 and continued through irrigation season of 2008. Assessment Monitoring is scheduled to occur in 2023 and 2024.

Bear Creek @ Kibby Rd is one of the Coalition's second priority subwatersheds and management plan constituents include chlorpyrifos, copper, DO, *E. coli*, pH and *C. dubia* toxicity. Additional MPM at Bear Creek @ Kibby Rd occurred in 2008 (May and July) for chlorpyrifos and *C. dubia* toxicity. The Coalition resumed MPM in 2010 and will continue through 2012 during months of past exceedances; there were no exceedances during 2011 MPM in Bear Creek.

A summary of current, recommended and newly implemented management practices in the Bear Creek subwatershed is included in the Second Priority Subwatersheds Summary of Management Practices section of this report.

Berenda Slough along Ave 18 ½

Berenda Slough along Ave 18 ½ is an Assessment Monitoring location within the Cottonwood Creek @ Rd 20 Zone (Zone 6). Monitoring at Berenda Slough along Ave 18 ½ first began in May 2006 and continued through the irrigation season of 2008. Assessment Monitoring took place in 2011 and is scheduled to occur again in 2012, 2017 and 2018.

Berenda Slough is one of the Coalition's third priority subwatersheds and management plan constituents include chlorpyrifos, copper, DO, *E. coli* and *S. capricornutum* toxicity. Chlorpyrifos and *S. capricornutum* toxicity were sampled as a part of additional MPM in 2007 and upstream MPM in 2008. All constituents were monitored monthly during 2011 as a part of Assessment Monitoring and there was one chlorpyrifos exceedance in April 2011. Metals were sampled for the first time at the site in 2011 and there were 11 dissolved copper exceedances (every month except March).

A summary of current and recommended practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report.

Black Rascal Creek @ Yosemite Rd

Black Rascal Creek @ Yosemite Rd is an Assessment Monitoring location within the Merced River @ Santa Fe Zone (Zone 4). Monitoring was initiated at the site beginning in the irrigation season of 2006 and continued through the irrigation season of 2008. Assessment Monitoring is scheduled to occur in 2025 and 2026.

Black Rascal Creek @ Yosemite Rd is one of the Coalition's forth priority subwatersheds and management plan constituents include chlorpyrifos, DO, *E. coli*, lead, pH and *C. dubia* toxicity. During the irrigation season of 2008, MPM for *C. dubia* toxicity (May, July and August) and chlorpyrifos (May, July, August and September) occurred and there were no exceedances. The Coalition believes the three chlorpyrifos exceedances in 2007 (where two were associated with *C. dubia* toxicity) were the result of a single application by one grower, and the Coalition since worked with that grower to reduce offsite movement of the pesticide. Management Plan Monitoring is scheduled to resume in 2012 for *C. dubia* toxicity (May, July and August), chlorpyrifos (May, July, August and September), and lead (April and September) and will continue through 2014. The Coalition will initiate its management practice tracking and outreach strategy in 2012.

Cottonwood Creek @ Rd 20

Cottonwood Creek @ Rd 20 is the Core Monitoring location in Zone 6. Monitoring at Cottonwood Creek first began in the storm season of 2005 and continued through 2011. The site was monitored for Core constituents only beginning in the fall of 2008 through 2010 as scheduled in the current 2008 MRPP.

Assessment Monitoring occurred at the site in 2011 and is scheduled to occur every third year. Core Monitoring will resume at Cottonwood Creek @ Rd 20 in 2012.

The Cottonwood Creek @ Rd 20 site subwatershed is one of the Coalition's second priority subwatersheds and management plan constituents include chlorpyrifos, copper, diazinon, diuron, DO, *E. coli*, and lead. Copper was sampled during additional MPM in 2007 and during upstream MPM at Cottonwood Creek @ Hwy 145 in 2008. In 2010, MPM resumed (chlorpyrifos, copper, diazinon and diuron) during months of past exceedances. During 2011, dissolved copper was the only high priority MPM constituent to exceed its WQTL (April, May, July, September and October); MPM will continue through 2012.

A summary of current, recommended and newly implemented management practices in the Cottonwood Creek subwatershed is included in the Second Priority Subwatersheds Summary of Management Practices section of this report.

Deadman Creek @ Gurr Rd

Deadman Creek @ Gurr Rd is a rotating Assessment Monitoring location in the Duck Slough @ Gurr Rd Zone (Zone 5). Monitoring at Deadman Creek @ Gurr Rd first began during the irrigation season of 2004. Monitoring was not conducted during 2005 or in the storm season of 2006. Monitoring resumed during the 2006 irrigation season and continued through fall 2010. Assessment Monitoring began in the fall of 2008 and continued through 2010 as scheduled under the current 2008 MRPP. Assessment Monitoring is scheduled to occur again in 2017 and 2018.

The Deadman Creek @ Gurr Rd site subwatershed is one of the Coalition's fourth priority subwatersheds and management plan constituents include ammonia, arsenic, chlorpyrifos, copper, DO, *E. coli*, SC, TDS, *C. dubia* toxicity, *P. promelas* toxicity, and *S. capricornutum* toxicity. During 2008, 2010 and 2011, MPM took place for high priority constituents during months of past exceedances. Management Plan Monitoring is scheduled in 2012 for *C. dubia* toxicity (February, March and November), chlorpyrifos (March, April, August and September), copper (January, February, April and May), *P. promelas* toxicity (January through March, May and June), and *S. capricornutum* toxicity (February).

Deadman Creek @ Hwy 59

Deadman Creek @ Hwy 59 is an Assessment Monitoring location in the Duck Slough @ Gurr Rd Zone and is upstream of Deadman Creek @ Gurr Rd (Zone 5). Monitoring began at the site in the irrigation season of 2006 and continued through the irrigation season of 2008. Assessment Monitoring was scheduled during 2011 and will continue through 2012 and will occur again in 2019 and 2020.

Deadman Creek @ Hwy 59 is one of the Coalition's forth priority subwatersheds and management plan constituents include arsenic, chlorpyrifos, DO, *E. coli*, and *S. capricornutum* toxicity. Additional MPM occurred for chlorpyrifos in 2008 (August and September). During 2009 MPM occurred for chlorpyrifos (August and September) and *S. capricornutum* toxicity (April) and in 2010, *S. capricornutum* toxicity (January) occurred. During 2011 Assessment Monitoring, there were two chlorpyrifos exceedances

(April and September). Assessment Monitoring is scheduled to occur again in 2012 and MPM for chlorpyrifos and *S. capricornutum* toxicity will continue through 2014. The Coalition will also begin its management practice tracking and outreach strategy in the subwatershed in 2012.

Dry Creek @ Road 18

Dry Creek @ Rd 18 is an Assessment Monitoring location within the Cottonwood Creek @ Rd 20 Zone (Zone 6). Monitoring began at the site during the 2005 irrigation season and continued through the 2008 irrigation season. Assessment Monitoring is scheduled for 2013 and 2014.

Dry Creek @ Rd 18 is one of the Coalition's third priority subwatersheds and management plan constituents include chlorpyrifos, copper, diazinon, diuron, DO, *E. coli*, lead, pH, *H. azteca* toxicity, and *S. capricornutum* toxicity. In 2007 and 2008, extensive MPM was conducted to address persistent exceedances of the copper WQTL, including five additional samples in 2007 and eight upstream samples in 2008. During 2007 and 2008 monitoring events, total copper exceedances occurred in samples collected from almost every event. Upstream MPM was also conducted for chlorpyrifos during the irrigation season of 2008 and no exceedances of the chlorpyrifos WQTL occurred during that time. In 2011, Dry Creek @ Rd 18 became a high priority site subwatershed and MPM was scheduled for several constituents; exceedances of the dissolved copper WQTL occurred in seven of the eight months scheduled for copper MPM.

A summary of current and recommended practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report. Management Plan Monitoring is scheduled to continue in 2012 for chlorpyrifos (February, April and July), copper (January, February and April-September), diazinon (February), diuron (January and February), *H. azteca* toxicity (March and September), lead (May, June, August and September) and *S. capricornutum* toxicity (January, February and May).

Dry Creek @ Wellsford Rd

The Dry Creek @ Wellsford Rd site subwatershed is the Core Monitoring location in Zone 1. Monitoring at Dry Creek @ Wellsford Rd was initiated during the storm season of 2005 and has continued through 2011. As scheduled in the current 2008 MRPP, Core Monitoring occurred at the site in the fall of 2008 through 2010, and will resume in 2012. Assessment Monitoring at Dry Creek @ Wellsford Rd occurred in 2011 and is scheduled to reoccur every third year.

The Dry Creek @ Wellsford Rd site subwatershed is one of the Coalition's first priority subwatersheds and management plan constituents include chlorpyrifos, copper, diuron, DO, *E. coli*, pH, SC, *H. azteca* toxicity and *S. capricornutum* toxicity. Additional MPM occurred at the site in 2007, and upstream MPM occurred at Dry Creek @ Waterford Rd in 2008 and 2009. Management Plan Monitoring (chlorpyrifos, copper, diuron, *H. azteca* toxicity and *S. capricornutum* toxicity) occurred in 2009 through 2011 during months of past exceedances.

A summary of current and recommended practices was included in the 2011 MPUR, and a summary of newly implemented practices in the Dry Creek @ Wellsford Rd subwatershed is included in the First Priority Subwatersheds Summary of Management Practices section of this report. During 2011, the only high priority exceedance to occur was sediment toxicity in September. The Coalition believes its

management plan tracking and outreach strategy has been effective in improving water quality in Dry Creek.

Duck Slough @ Gurr Rd

Duck Slough @ Gurr Rd is the Core Monitoring location in Zone 5. Monitoring at Duck Slough @ Gurr Rd began during the irrigation season of 2004 and continued through fall 2011. Core Monitoring took place at Duck Slough @ Gurr Rd beginning in the fall of 2008 and continued through 2010. Core Monitoring will resume at the site in 2012. Assessment Monitoring occurred at Duck Slough @ Gurr Rd in 2011 and is scheduled to occur every third year thereafter.

Duck Slough @ Gurr is one of the Coalition's second priority subwatersheds and management plan constituents include chlorpyrifos, copper, DO, *E. coli*, lead, pH, SC, TDS, *C. dubia* toxicity, *H. azteca* toxicity, and *S. capricornutum* toxicity. Additional MPM occurred in 2007, and upstream MPM occurred at Duck Slough @ Hwy 59 and North Slough @ Hwy 59 in 2008. During 2011, MPM (copper, chlorpyrifos, *C. dubia* toxicity, *S. capricornutum* toxicity, and *H. azteca* toxicity) occurred and will continue through 2012 during months of past exceedances.

A summary of current, recommended and newly implemented management practices in the Duck Slough @ Gurr Rd subwatershed is included in the Second Priority Subwatersheds Summary of Management Practices section of this report. During 2011, the only high priority constituent exceedance to occur was September toxicity to *H. azteca*.

Duck Slough @ Hwy 99

The Duck Slough @ Hwy 99 site subwatershed is a rotating Assessment Monitoring location within the Duck Slough @ Gurr Rd Zone (Zone 5). Sampling was initiated at this location during the storm season of 2005 and continued through the end of the irrigation season of 2008. Assessment Monitoring is scheduled to occur in 2013 and 2014.

The Duck Slough @ Hwy 99 site subwatershed is one of the Coalition's first priority subwatersheds and management plan constituents include chlorpyrifos, copper, DO, *E. coli*, lead, pH, and *S. capricornutum* toxicity. Management Plan Monitoring (chlorpyrifos, copper, lead, and *S. capricornutum* toxicity) occurred from 2007 through 2011 during months of past exceedances.

A summary of current and recommended practices was included in the 2011 MPUR, and a summary of newly implemented practices in the Duck Slough @ Hwy 99 subwatershed is included in the First Priority Subwatersheds Summary of Management Practices section of this report. The Coalition believes its management plan tracking and outreach strategy has been effective in improving water quality in Duck Slough.

Hatch Drain @ Tuolumne Rd

Hatch Drain @ Tuolumne Rd is an Assessment Monitoring location in the Prairie Flower Drain @ Crows Landing Rd Zone (Zone 2). Monitoring began at the site in 2007 and continued through the 2008 irrigation season. During the two years, there were three samples toxic to *H. azteca*.

Hatch Drain @ Tuolumne Rd is one of the Coalition's fifth priority subwatersheds and management plan constituents include DO, SC, TDS, *E. coli*, arsenic, and *S. capricornutum* and *H. azteca* toxicity. In 2014, MPM is scheduled to begin and will continue through 2015. Assessment Monitoring is scheduled to occur in 2024 and 2025.

Highline Canal @ Hwy 99

The Highline Canal @ Hwy 99 site subwatershed is the Core Monitoring location in Zone 3. The Coalition began monitoring at the site in the irrigation season of 2005 and has monitored continually through 2011. Core Monitoring constituents were sampled at the site from October 2008 through 2010. Assessment Monitoring occurred at the site in 2011 and will occur again every third year. Core Monitoring will resume at the site in 2012.

Highline Canal @ Hwy 99 is one of the Coalition's second priority subwatersheds and management plan constituents include ammonia, chlorpyrifos, copper, diuron, *E. coli*, lead, pH, SC, TDS, *C. dubia* toxicity, *H. azteca* toxicity and *S. capricornutum* toxicity. Additional MPM occurred at the site in 2007 and 2008, and MPM (copper, chlorpyrifos, diuron, *C. dubia* toxicity, *H. azteca* toxicity, and *S. capricornutum* toxicity) occurred during months of past exceedances in 2009, 2010 and 2011.

A summary of current, recommended, and newly implemented management practices in the Highline Canal @ Hwy 99 subwatershed is included in the Second Priority Subwatersheds Summary of Management Practices section of this report. There were no exceedances of high priority constituents during 2011 monitoring; the Coalition will continue MPM in 2012.

Highline Canal @ Lombardy Rd

The Highline Canal @ Lombardy Rd site subwatershed is an Assessment Monitoring location in the Highline Canal @ Hwy 99 Zone (Zone 3) and is located upstream of the Highline Canal @ Hwy 99 site. Monitoring was initiated at this site during the 2005 storm season and continued through the 2008 irrigation season. Assessment Monitoring occurred at Highline Canal @ Lombardy Rd in 2011 and is scheduled to continue through 2012.

The Highline Canal @ Lombardy Rd subwatershed is one of the Coalition's fifth priority subwatersheds and its management plan includes chlorpyrifos, copper, *E. coli*, lead, pH, SC, *C. dubia* toxicity, *H. azteca* toxicity and *S. capricornutum* toxicity. The Coalition has conducted four years of MPM (additional MPM in 2007 and 2008; MPM during months of past exceedances in 2009 and 2010). Exceedances during 2011 include dissolved copper (February), *E. coli* (February and June), and toxicity to *S. capricornutum* (April). When the site becomes a high priority subwatershed in 2013, the Coalition plans to focus on *C. dubia* toxicity, chlorpyrifos, copper, *H. azteca* toxicity, lead and *S. capricornutum* toxicity.

Hilmar Drain @ Central Ave

The Hilmar Drain @ Central Ave site subwatershed is within the Prairie Flower Drain @ Crows Landing Rd Zone (Zone 2). Normal Monitoring began at the site in 2005 and continued through 2008; the site is scheduled for Assessment Monitoring in 2020 and 2021.

The subwatershed is one of the Coalition's forth priority subwatersheds and management plan constituents include ammonia, chlorpyrifos, copper, diuron, DO, *E. coli*, nitrate, pH, SC, TDS, *H. azteca* toxicity and *S. capricornutum* toxicity. Management Plan Monitoring occurred at the site in 2007 through 2009, and will occur again in 2012 for chlorpyrifos, copper, diuron, *H. azteca* toxicity, nitrate, and *S. capricornutum* toxicity during months of past exceedances. The Coalition plans to begin individual contact meetings with targeted growers in 2012 and MPM is scheduled for chlorpyrifos (July), copper (February and July), diuron (April and June), *H. azteca* toxicity (March and September), and *S. capricornutum* toxicity (April, July and September).

Howard Lateral @ Hwy 140

Howard Lateral @ Hwy 140 is an Assessment Monitoring location in the Merced River @ Santa Fe Zone (Zone 4). Assessment Monitoring first occurred in the fall of 2008 continued through 2010. The site is scheduled for Assessment Monitoring again in 2029 and 2030.

The site is one of the Coalition's seventh priority subwatersheds and requires a management plan for chlorpyrifos, copper, DO, *E. coli*, pH, SC, and TDS. To collect two years of monitoring for management plan constituents before the site becomes a high priority, the Coalition conducted MPM in 2011 for chlorpyrifos (June) and copper (April, July and October); there was an exceedance of copper in October. Management Plan Monitoring will occur again in 2012 to satisfy the two year requirement; MPM is then scheduled to resume when the site becomes a high priority in 2015.

Lateral 2 1/2 near Keyes Rd

Lateral 2 ½ near Keyes Rd is a rotating Assessment Monitoring location within the Prairie Flower Zone (Zone 2), and Assessment Monitoring is next scheduled for 2028 and 2029. Monitoring first began at the site in the fall of 2008 and continued through 2010 for Assessment Monitoring constituents.

During the 2008 through 2010 monitoring three chlorpyrifos exceedances occurred (July 2009 and April and July 2010). Given the exceedances and because Lateral 2 ½ drains directly to the San Joaquin River, the Coalition was approved on November 17, 2010 to move Lateral 2 ½ near Keyes to the Coalition's third priority subwatersheds (focused outreach 2011-2013); other management plan constituents include *E. coli* and pH. Management Plan Monitoring occurred in 2011 for chlorpyrifos (April and July) and there were no exceedances.

A summary of current and recommended practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report. The Coalition will follow up with targeted growers in 2012 and 2013 to determine which additional management practices were implemented, and MPM will continue during those years for chlorpyrifos.

Livingston Drain @ Robin Ave

Livingston Drain @ Robin Ave is an Assessment Monitoring location in the Merced River @ Santa Fe Zone (Zone 4), and Assessment Monitoring is next scheduled for 2021 and 2022. Monitoring began at the site during the irrigation season of 2007 and continued through the irrigation season of 2008.

Livingston Drain @ Robin Ave is one of the Coalition's third priority subwatersheds and management plan constituents include chlorpyrifos, copper, *E. coli*, lead, pH and *S. capricornutum* toxicity. Additional MPM occurred in 2008 for copper; five copper (total) exceedances occurred in 2008 during Normal Monitoring and MPM. When the site became a high priority subwatershed in 2011, MPM resumed for chlorpyrifos (January and June through August), copper (January, February, May through July, and September), lead (January and February), and *S. capricornutum* toxicity (February through May); there were two exceedances of copper (dissolved) in July and September of 2011.

A summary of current and recommended practices is included in the Third Priority Subwatersheds Summary of Management Practices section of this report. Management Plan Monitoring and outreach is scheduled to occur through 2013.

Merced River @ Santa Fe Dr

Merced River @ Santa Fe is the Core Monitoring location within Zone 4. Normal Monitoring was initiated during the irrigation season of 2004 and continued through the irrigation season of 2008. Core Monitoring began at Merced River @ Santa Fe in the fall of 2008 and continued through 2010. Assessment Monitoring occurred at the site in 2011 and will occur again every third year. Core Monitoring will resume at the site in 2012.

The Merced River @ Santa Fe subwatershed is one of the Coalition's fifth priority subwatersheds and management plan constituents includes chlorpyrifos, DO, *E. coli*, lead, and *C. dubia* toxicity. The Coalition has conducted three years of MPM (additional MPM in July and August 2008; upstream MPM in Dry Creek @ Oakdale Rd November 2009 through January 2010; and MPM in January 2010) and has educated growers in the subwatershed of water quality concerns due to chlorpyrifos in the river through educational mailings and news articles. Exceedances during 2011 include dichlorodiphenyltrichloroethane (DDT, first exceedance, June) and *E. coli* (June). The Coalition plans to focus on high priority constituents, including *C. dubia* toxicity, chlorpyrifos, and lead, when the site becomes a high priority in 2013.

Miles Creek @ Reilly Rd

Miles Creek @ Reilly Rd is an Assessment Monitoring location in the Duck Slough @ Gurr Rd Zone (Zone 5), and Assessment Monitoring is scheduled for 2015 and 2016. Monitoring began at the site in 2007 and continued through the irrigation season of 2008.

The Miles Creek @ Reilly Rd subwatershed is one of the Coalition's fifth priority subwatersheds and management plan constituents include chlorpyrifos, copper, DO, *E. coli*, lead, *C. dubia* toxicity, *H. azteca* toxicity, and *S. capricornutum* toxicity. Management Plan Monitoring occurred during 2009 and 2010

for chlorpyrifos (July, August and September 2009), copper (July and August 2009 and January and February 2010), *S. capricornutum* toxicity (April 2009), and *C. dubia* toxicity (January and February 2010); chlorpyrifos exceeded the WQTL in July 2009. Management Plan Monitoring will resume in 2013 when the site becomes a high priority.

Mootz Drain @ Langworth Rd / Mootz Drain downstream of Langworth Pond

Mootz Drain downstream of Langworth Pond is an Assessment Monitoring location within the Dry Creek @ Wellsford Rd Zone (Zone 1). The downstream of Langworth Pond site replaced the Mootz Drain @ Langworth Rd Assessment Monitoring location starting in December 2009 to better characterize discharges from upstream agriculture since the pond can act as a sediment basin and retain both water and sediment. Sampling began in Mootz Drain in October of 2008 and continued through 2010. The site is next scheduled for Assessment Monitoring in 2015 and 2016.

Mootz Drain downstream of Langworth Pond is one of the Coalition's seventh priority subwatersheds and management plan constituents include ammonia, chlorpyrifos, diuron, DO, and *E. coli*. Chlorpyrifos first exceeded the WQTL in December 2008 and again in June 2009 (both exceedances occurred within the pond @ Langworth Rd). Diuron exceeded the WQTL in February 2009 (in the pond @ Langworth Rd) and again in December 2010 (downstream of Langworth Pond). Management Plan Monitoring will occur in 2015 for chlorpyrifos and diuron and will continue through 2017.

Mustang Creek @ East Ave

Mustang Creek @ East Ave is a rotating Assessment Monitoring location within the Highline Canal @ Hwy 99 Zone (Zone 3). Mustang Creek is an ephemeral waterbody and it is frequently dry; flow is found primarily during winter runoff events. Monitoring began at the site in 2006 and continued through 2010 (Assessment Monitoring fall of October 2008 through 2010). Mustang Creek is scheduled to rotate into an Assessment Monitoring location again in 2015 and 2016.

The Mustang Creek @ East Ave site subwatershed is one of the Coalition's sixth priority subwatersheds and management plan constituents include chlorpyrifos, copper, dichlorodiphenyldichloroethylene (DDE), DO, *E. coli*, nitrate, SC, simazine, and TDS. The Coalition conducted MPM for both chlorpyrifos and simazine (January and February 2010). The two exceedances of chlorpyrifos and two exceedances of simazine occurred during the same storm events (January and February 2008). Samples with copper exceeded the WQTL in 2009 (February, October, and December) and 2010 (February), and there were two exceedances of nitrate in 2009 (February and March). The Coalition plans to focus on high priority constituents, including chlorpyrifos, copper, nitrate, and simazine, when the site becomes a high priority in 2014.

Prairie Flower Drain @ Crows Landing Rd

The Prairie Flower Drain @ Crows Landing Rd subwatershed is the Core Monitoring location in Zone 2, and sampling began in 2005 and has occurred continuously since. Assessment Monitoring at this site occurred in 2011 and is scheduled to recur every third year. Core Monitoring will resume at this location in 2012.

The Prairie Flower Drain @ Crows Landing Rd site subwatershed is one of the Coalition's first priority subwatersheds and has a management plan for ammonia, chlorpyrifos, dimethoate, DO, *E. coli*, molybdenum, nitrate, pH, SC, TDS, *C. dubia* toxicity, *H. azteca* toxicity, *P. promelas* toxicity and *S. capricornutum* toxicity. Additional and upstream MPM occurred in 2007 and 2008 for chlorpyrifos, *C. dubia* toxicity, nitrate, and *P. promelas* toxicity; chlorpyrifos and nitrate exceedances occurred as well as toxicity to *C. dubia*, *H. azteca*, and *S. capricornutum*. In 2009 through 2011, MPM occurred (*C. dubia* toxicity, chlorpyrifos, *H. azteca* toxicity, nitrate, and *S. capricornutum* toxicity) during months of past exceedances. A summary of current, recommended and newly implemented practices was included in the 2011 MPUR.

The Coalition plans to continue to conduct MPM in 2012 and will work with the Regional Board and other entities to address continued water quality impairments in Prairie Flower Drain.

Silva Drain @ Meadow Dr

Silva Drain @ Meadow Dr is an Assessment Monitoring location in the Merced River @ Santa Fe Zone (Zone 4) and is next scheduled for Assessment Monitoring in 2027 and 2028. Monitoring began at the site in 2006 and continued through the 2008 irrigation season.

Silva Drain @ Meadow Dr is one of the Coalition's sixth priority subwatersheds and management plan constituents include ammonia, chlorpyrifos, copper, DO, *E. coli*, *C. dubia* toxicity and *H. azteca* toxicity. Additional MPM was conducted for chlorpyrifos in 2007 and 2008 (July and August); since Silva Drain is such a small subwatershed, upstream sampling was not conducted. There were six chlorpyrifos WQTL exceedances, three copper WQTL exceedances, and two toxicities each to *C. dubia* and *H. azteca*. Management Plan Monitoring will resume at the site in 2014 when it becomes a high priority.

Westport Drain @ Vivian Rd

Westport Drain @ Vivian Rd is a rotating Assessment Monitoring location within the Prairie Flower Zone (Zone 2) and is scheduled for Assessment Monitoring in 2026 and 2027. Monitoring began at the site in 2007 and continued through the irrigation season of 2008.

Westport Drain is one of the Coalition's sixth priority subwatersheds, and management plan constituents include chlorpyrifos, DO, *E. coli*, nitrate, SC, TDS and *S. capricornutum* toxicity. There were two exceedances of chlorpyrifos (July 2008 and 2009), three toxicities to *S. capricornutum* (May 2007, February and April 2008), and 13 nitrate exceedances (storm and irrigation months). Management Plan Monitoring has not occurred at the site in the past and will begin in 2014 when the site becomes a high priority.